

# MISSOURI

## COMMISSION ON MANAGEMENT AND PRODUCTIVITY



## AUTOMATION TASK FORCE

DRAFT REPORT

JULY 22, 1994

## Automation Task Force

### **TASK FORCE CHAIR:**

**RANDALL POPPELL**  
*General American Life Insurance Company*

### **TASK FORCE VICE CHAIR:**

**MIKE LYNCH**  
*Missouri Department of Public Safety*

### **TASK FORCE MEMBERS:**

**ALBERT ABLE**  
*Central Trust Bank*

**PAUL NEWHOUSE**  
*Regional Justice Information Service*

**JAMES CALLIS**  
*Missouri Department of Revenue*

**MELBA PRICE**  
*Missouri Department of Social Services*

**RALPH CARUSO**  
*University of Missouri*

**JON RICKMAN**  
*Northwest Missouri state University*

**JOHN COLLINS**  
*Hallmark Cards, Inc.*

**REPRESENTATIVE STEVE STOLL**  
*Missouri House of Representatives*

**SENATOR WAYNE GOODE**  
*Missouri State Senate*

**DAVID VALENTINE**  
*Missouri Senate Research*

**ANDY HUCKABA**  
*Huckaba and Associates*

**ELDON WALLACE**  
*Missouri Department of Higher Education*

**RICK HUTCHERSON**  
*Missouri Department of Elementary  
and Secondary Education*

**DAVID WEISS**  
*Barnes-Jewish, Inc.*

### **TASK FORCE STAFF:**

**CAROLYN KAMPETER**  
*Missouri Office of Administration*

**DAVE ROST**  
*Missouri Department of Public Safety*

**RALPH LINDSEY**  
*Missouri Department of Public Safety*

**BILL WEHMEYER**  
*Missouri Department of Social Services*

**MARY BETH PETERS**  
*Missouri Department of Social Services*

DOCUMENTS DIVISION

## Preface

The mission of the Automation Task Force of the Governor's Commission on Management and Productivity was to *develop strategies to improve existing information technology (IT) and create a plan to establish an infrastructure which supports innovative management solutions.*

The purpose of the Automation Task Force was to:

- a) *describe the current condition of IT in state government,*
- b) *identify strategic concerns in current planning and operations which prevent greater performance and missed business opportunities relative to benefits to Missouri citizens, and*
- c) *propose a course of action for the state to achieve better performance for its publics.*

The Automation Task Force believes this report contains an accurate assessment of the current condition of IT in Missouri government, the identification of primary concerns which are impeding progress in the business of state-level governing, and recommendations which are essential to correct the current course of action/inaction. Significant, as well, is that this plan of recommendations does not:

- a) *require new appropriations, and/or*
- b) *create new bureaucracy!*


The Automation Task Force recognizes that considerable inertia exists in organizations which either prevents change or makes it "acceptable" to accomplish in such incrementally small steps as to be of no benefit. The challenge in Missouri government is to fully recognize the inherent "home town" advantage of current thinking and practices in its organization and to provide decisive and pervasive leadership to overwhelm the current inertia and replace it with an action and results-oriented business climate. There is no substitute for action!

## Executive Summary

Over the past six months, the Automation Task Force has used its collective experience in both public and private sectors, to develop strategies to move Missouri forward to face the information technology (IT) challenges of the next century. An integral part of this process has been a partnership with those in state government who are most directly affected by our recommendations. Our final report is reflective of a partnership with the Data Processing Managers and Data Center Managers who provided research, background information and guidance throughout the process. It is these dedicated employees who will design and implement the processes that will ensure the success of our recommendations.


The business of Missouri state government is *resources, services and information*. IT is the infrastructure which enables state government to gather and distribute resources, provide services and disseminate information. While much of the IT required to operate government is in place, it tends to be sub-optimized for individual agency benefit. The attached Automation Task Force Final Report identifies problems and solutions, and suggests a framework within which IT resources should be managed and developed.

While the imperative to achieve short-term savings as a result of the COMAP deliberations is obvious and desirable, the Automation Task Force feels that the long-term and less obvious effects of our work will yield far greater savings and cost avoidance opportunities, for example:

- ▶ There is no mandate or strategy for agencies to cooperate to maximize the enterprise-wide use of existing or future data resources or IT infrastructure. The result is structural inefficiencies, waste, and duplication of services. ~~The result is a lack of direction in the use and acquisition of IT resources, structural inefficiencies, waste, and duplication of services.~~ 
- ▶ Agencies are currently allowed to obtain costly and sophisticated hardware and software with little or no planning or leadership as to how this technology should be integrated into the legitimate overall needs of the agency or the state as an institution. Often, individuals and work groups decide what IT tools to acquire and how to best use them. *without any consideration for the effects of those decisions on other agencies or the state*
- ▶ Minimal direct or indirect support is available for individual employees or work groups who are expected to utilize these IT tools. The result is a *govt as an enterprise* workforce that is over-equipped for the available support expertise to allow them to fully utilize the tools provided.
- ▶ The vast majority of the flow of information within state government and among state government and its constituents remains paper-based, while



technologies for electronic dissemination of information is pervasive throughout the industry.


The genesis for this unfortunate situation is a governmental culture that has little understanding of the needs or benefits of IT. Relative to personnel expenditures, the legislature has been quite liberal in funding computer hardware and software in the belief that this will lead state government to greater workforce efficiencies while holding down personnel costs. There are many legislators who believe that by now we must have a computer supplied for every employee in state government. Some say they are still waiting for the payoff. In fairness to the bureaucracy, this strategy has worked relatively well for the last twenty years; the state would never have been able to sustain the growth in government programs and direct services which the bureaucracy is expected to support, without the investment in IT to leverage the productivity of state employees. 

However, the state is now entering the next generation of IT which requires interoperability between our "islands of information". The state can no longer afford to build separate databases in each agency which redundantly captures the same information over and over and is not accessible from agency to agency. The state should not need to ask our citizens to supply us with their name, address, phone number, etc. each time they deal with a state agency. There should be a common citizen database accessible by all agencies to help us better serve the public. Hiring ever greater numbers of employees to answer phones, or manually complete reports to supply routine information to citizens or private enterprise is no longer a viable way to conduct the public's business. And finally, asking citizens or private enterprise to appear in person to conduct routine business with state agencies is an inefficient and outdated approach to customer service.

What is lacking to address these and many other similar problems is not funding, but effective planning and leadership.

The Automation Task Force believes that Missouri state government is not well positioned to respond to additional demands for resources, services and information, with no corresponding increase in revenues. This report specifies three action areas which are crucial to the short and long-term success of IT and the vital state services that are supported by IT:

- *Planning, Support and Organization of IT*
- *Consolidation of the state data centers*
- *Consolidation of state data networks*

*AND INDIRECT*  
A window of opportunity exists to begin redirecting as much as \$1 million per month in identified direct IT expenditures during the first year. Other COMAP task forces have identified ~~additional savings of over \$1 million per month~~ in indirect cost savings as a result of decreased paperwork flows and streamlined operations. 

*SIMILAR*

Recognizing that state salaries are the largest single expense to the state, the Automation Task Force also believes that IT, when properly planned, supported and implemented, will yield significant productivity gains and improvements in customer service. While unmeasurable in dollar savings, this alone should justify the recommendations in our report.

The Automation Task Force unanimously agrees that the cornerstone from which these savings will be derived is an effective enterprise-wide business, and information technology, strategic planning process; and strong, forward-thinking IT leadership, which is conceived in our final report as a *Chief Information Officer*. There is broad agreement on each of the principles upon which our report is based; the state must move expeditiously to address the fundamental issues delineated herein.

## **Recommendation #1 Strategic Planning**

### **Recommendation**

Implement an ongoing strategic IT planning process which addresses statewide acquisition, implementation and application of information technology (IT). <sup>(1)</sup>  
The substance of the IT plan should coordinate directly with the State of Missouri's overall Strategic Plan, if one exists.

### **Background**

A number of management and utilization patterns of state-funded human and material resources, some directly associated with IT and others potentially benefitted/leveraged by its application, were documented during the course of information collection by the Automation Task Force. The following reflect broad concerns rising from the analysis of the information collected.

There is an apparent lack of statewide leadership in IT for today's challenges and those of the next century.

State government agencies do not appear to conceive themselves as business enterprises and having "business partners" in other economic sectors, i.e., private. Their policies and particularly practices reflect this cultural view.

State government, as a whole, nor its agencies uniformly and consistently engage in intermediate and long-range IT business planning.

Presently, IT appears driven by the functional needs of agencies, versus an overarching, statewide vision which directs IT strategic planning.<sup>(2)</sup>

Many state-funded computing services are redundant; others are incompatible and defeat interoperability/interconnectivity.

---

(1) Chapter 37, Section 37.005, RSMo, (see Appendix F) already requires the Commissioner of Administration to coordinate and control in this area. The Automation Task Force has recommended that some duties assigned under this section be charged to the Office of Information Technology (OIT). The current position, Director of Data Processing and Telecommunications, would retain the service functions, while OIT would assume the coordination and control duties in the area of statewide IT.

(2) It appears that many low- to mid-level organizational units within state agencies are optimizing their functioning and effectively apply various types of IT. These activities may be sub-optimal when considered with the strategic needs of state government.

- There is a general lack of strategic and tactical efforts to maximize the capability of the workforce, both professional and support, to use IT to achieve greater productivity.
- Hardware and software standards are lacking within and across agencies, particularly in the area of personal computers (PC), thus reducing the functional uses of the IT capacity purchased.
- The state does not aggressively conduct research and development activities for the purpose of identifying promising IT applications for its business problems.

Public organizations, like private companies, have unique cultures which are reflected in how they conduct business and govern. The tactical approaches of bureaucracies to governing are often one-sided and don't view those whom are governed as supporters and, moreover, as "business partners". Relationships which do exist tend to be very structured and to the primary benefit of addressing the needs of the bureaucracy. In such an environment, opportunities to conduct business which leverages the strengths and resources of the bureaucracy to the benefit of its private business partners are rarely conceived. This role conception by bureaucracies is reflected in limited efforts to define goals and evaluate progress, and to forge mutually beneficial interactive efforts among agencies.

Numerous interviews conducted and material reviewed regarding the condition of state operations in the area of IT reflect a culture in which there are many competing interests at work shaping policies and practices. Over time, these forces appeared to have sometimes caused improvements which otherwise would not have occurred; however, they sometimes have resulted in aberrant policies and activities which were not efficient or productive.

The findings of the Automation Task Force point to the need for increased central leadership in IT, but it is also noted that the authority already exists in statute for the Office of Administration (OA) to provide such leadership. However, several years ago officials in OA, either at their own choosing or having been prompted by others, decided to terminate its active command and control function(s) with state agencies in the area of IT. Years later, it could be very difficult for OA to reclaim its statutory authority in this area.

Missouri state government, including the executive, judicial<sup>(3)</sup> and legislative branches, neither separately nor in total, have an overall Strategic Plan. Nor does any of the three have an IT plan which addresses its business needs, nor the needs of consumers of state services (see Table 2). Regardless, all branches of government have spent large sums of money<sup>(4)</sup> (see Table 2), generally on isolated computerized applications, with even larger investments guaranteed in the future.<sup>(5)</sup>

---

- (3) The Judiciary recently received authorization to collect an additional \$10 million in court fees to plan and implement a statewide automated court system.
- (4) Due to agencies purchasing computers and related equipment "off the IT budget" (see Table 2) and because funds are spent for IT in so many other ways which are not readily apparent in agency budgets, determination of the level of actual IT expenditures in many agencies is essentially impossible. (In most agencies, it is not possible to learn the level of IT expenditure by asking the central administrative staff. The Automation Task Force learned that it is sometimes necessary to go three and four levels down in large organizations to learn this information.) This is particularly true at the current time because PCs and related equipment and software appear to make up the bulk of new purchases (see Appendix P), and when contract IT consultation/programming is widely used. Moreover, these are the purchases which are fueling the tremendous growth in work group networking within agencies throughout state government. As these networks grow and hold more agency electronic resources, they begin to vie for power and resources from the parent organization. Some of these networks are not initially known to the agency managers in charge of IT.
- (5) During this study, various examples were identified of state government not acting on opportunities to leverage public resources to produce or secure cost-effective services on behalf of Missouri citizens. Among the most notable occurred in 1994. The Department of Highways and Transportation let a bid to a private company to lay fiber optic cable on the right-of-way of the interstate highway system in Missouri. (Allowing a private company to operate directly on the right-of-way of an interstate highway is extremely unusual and offers tremendous capital cost advantages to the company securing such access.) This cable is capable of carrying large volumes of voice, data and video signals at high speeds. (These are areas of critical importance to the State for current and future IT applications.)

During negotiations, the Department secured access on the cable for transmission of its own signals. However, the interest of the state, at large, in potentially securing access to this utility were not effectively represented in the negotiations with the successful contractor. Had state officials been more vigilant in recognizing the value of public resources being granted to a private company (the contract is for 40 years) and its ability to negotiate low cost access to a strategic utility, i.e., high speed data and video communications, a future cost avoidance worth millions of dollars may have been effected. It is critical that statewide planning of IT resources be developed to prevent such occurrences in the future. Scarce state resources must be leveraged more effectively.

There is evidence of significant and costly duplication of various IT hardware and services in state government. One major area of expense is the operation of six separate state-funded mainframe computer centers within a five-mile radius of the Capitol Building in Jefferson City. (These include the Departments of Highway and Transportation, OA's State Data Center, Department of Labor and Industrial Relations (IT being recently reorganized from the Division of Employment Security), Department of Public Safety, Department of Social Services, and the Department of Elementary and Secondary Education.) Numerous studies in recent years have proposed consolidation of this capacity. However, there has been no movement to do so.

Another area of operation which has significant potential for savings or resource reallocation is that of the data communications network which is now in place for government agency use. There are dramatic levels of duplication in this contracted resource, owing largely to the lack of central management of the aggregate capacity thereof. There appears to be many other areas of potential savings or resource reallocation by reducing duplication, few of which will be pursued without strong central leadership.

Possibly nowhere in state government is the lack of meaningful coordination and planned expansion related to business needs more evident than in the recent acquisition and use of PCs and small networks (see Tables 2 and 3). Since the first office PC was purchased in Missouri in the early 1980s, thousands of increasingly powerful machines have been acquired and placed into service. (According to the Office of Administration, there were in excess of 22,000 PCs in the executive branch at the end of FY93.) Along with these computers, have come important but expensive peripherals (i.e., large monitors, printers, modems, etc.), all of which add to costs for purchase and maintenance, and which consume agency resources to house, operate and maintain.

The use of PCs is changing the way much of state business is done; however, the changes do not necessarily reflect that business processes are being done more intelligently. Rather, in many cases, computers are being used as smart typewriters. This is evident by inspection of the skills of many users, most of whom know very few integrated uses of word processors, databases, spreadsheets and other core business software. It is essential that state agencies define their essential business activities and thereafter, apply IT to most productively address the business need, including fully preparing and supporting the workforce to use the IT provided.

In private business the evolution of IT is resulting in the repositioning of the large mainframe away from the central processor function to which numbers of dumb terminals, capable of little more than sending keystrokes to the

mainframe, were attached to that of being a large data storage and batch server or library facility. Powerful workstations and PCs are taking the role of desktop devices capable of storing significant amounts of data, some downloaded from mainframes for processing, which is manipulated and applied to immediate business uses. In state government, in general, this transition is occurring much slower, is not generally centrally planned, and lacks standardization in approach and implementation (see Table 3).

Similar to the uneven and often times slow development of other IT functions throughout state government, connectivity among and within agencies with multi-platform networks (e.g., mainframe-to-midrange computers-to-PC networks, or any combination thereof) is quite limited with regard to compatibility. State agencies are largely free, especially for PCs, to select among hundreds of propriety and agency-developed computer programs with which to perform their operations. Particularly in the area of personal computing software (that which is experiencing the greatest installation growth - see Appendix C), state government subscribes to essentially few IT hardware or software standards, causing incongruities (regardless that many major proprietary software titles provide conversion options) in IT implementation within and across agencies and defeating interconnectivity efforts.<sup>(6)</sup>

- 
- (6) Standards for the selection of PC hardware and software are largely absent across state government. Owing largely to there having in the past been one dominant vendor of mainframe hardware and software in Missouri state government, there are defacto standards in place for the mainframe environment. However, with the growing level of instability in the mainframe and mid-range industry, there may not be such market dominance by one company in the future and thus, standard setting will most likely, as in the case of PCs, LANs/WANs, and a wide variety of other IT areas, revert to the user.

There is no formal organization in place which has been given or has assumed the role of setting standards in such areas as networking, operating systems, EDI, computer assisted software engineering (CASE) tools, office applications such as word processing, e-mail, databases, spreadsheets, presentation graphics, and so forth. The Data Processing Managers, a voluntary association that meets informally, has recently begun to function in somewhat of this role. However, this group is not formally chartered and lacks the authority to set or enforce standards.

It is important to consider that many propriety software vendors now develop programs which subscribe to "open systems architecture" standards which allow the files of a particular program to be readily imported into another, e.g., a document created in one word processing program can be easily imported and worked with in another word processing program.

The Automation Task Force questioned if a contractor operated OIT whether he/she could legally approve IT expenditures. This legal matter needs to be addressed if this tactical recommendation is pursued.

There is much improvement needed to arrive at a statewide system where users, whether public or private and regardless of computing platform, can communicate and work effectively.

The results of this electronic isolation of agencies (e.g., "islands of information") is excessive dependence upon paper transfer of data, delays in communication among agencies, inability and inefficiency to assemble critical data for decision making throughout government, and others which directly impact the cost, effectiveness and productivity of state government as a whole. State government must effectively leverage all of its resources to contribute to the service needs and competitive advantage of its citizens and private sector business partners.

### **Rationale**

Both public and private American business enterprises are increasingly stressed by global economic competition, social and economic inequities, as well as the changing workforce. There is strong repudiation of government efforts to increase the amount of domestic production it consumes for the services it provides. Government retrenchment is occurring throughout the nation and state. Public servants must redesign the services they provide to be more cost effective and responsive to the needs of citizens.

Missouri state government possesses extensive IT hardware, software and knowledge in their use and application. However, as detailed before, the full potential of these assets could be more effectively applied to improve services to citizens. While there is recognition that service to citizens is the central purpose of government, there appears to be weaknesses and fragmentation in achieving a union among political office holders, branches of government, and agencies within government to strategize and manage for the achievement of this vision. The nature of change in many sectors of state government is that of very gradual, incremental steps toward goals which often change before being achieved. It should be expected that the recommendations contained herein may result in the appearance of resistance and intransigence by some agencies. However, this may instead be a reflection of resistance toward the speed and breadth of change recommended, and not the substance of the changed proposed.

The recommendations contained herein are directed at providing a strong, well focused presence of IT in business planning and implementation activities throughout state government; not just in the executive branch, but for the legislature and judiciary. This is seen as the central impediment to improving performance of many of the state's business activities.



Failure to act soon to bring more direction, order, and productivity of state government is expected to result in a) decreasing services to citizens per tax dollar consumed and b) growing inability to be responsive to the changing needs of Missouri and its citizens. This is a critical time when government must provide intelligent leadership and work collaboratively with other public and private sector business partners.

## **Implementation**

The recommended strategies share the strength of validation by having been successfully adopted in other states and currently having corollaries, albeit they vary in effectiveness as implemented, in Missouri state government. **The centerpiece of this recommendation is the State of Missouri developing a Strategic Planning process at the state and agency levels.** This activity should be followed with the development of IT plans which coordinate with the Strategic Planning effort. The failure to initiate an improvement in planning will eventually negate benefits from any other short or near-term optimizing efforts. In short, there must be a vision, a mission and values expressed by the organization, followed by specific goal-directed planning and effective implementation to realize the vision. Major critical-path interventions to the strategic plan which are politically motivated and which don't support the central values and mission of the state will have certain negative consequences to progress. Further, agencies and administrators charged with action by statute must act in the best interests of the state and not be unduly restrained by political interventions.

*Strategies* - The following strategies are recommended:

1. *Implement an IT Strategic Planning Process which supports the statewide agency-specific strategic planning process.*

Appendix B includes the basic design and steps of a strategic planning process. In addition, the References section includes a variety of documents describing the efforts of other states in this area. This recommendation specifically calls for the development of a "process" which is ongoing and embedded in the current and future business of the state. It should not be an "appendage" to current operations. Further, if done only in the executive branch, its effect will be limited and subjugated by contrary agency politicking.

2. *Executive Order Establishing and Staffing an Office of Information Technology (OIT), a.k.a. Chief Information Officer (CIO), Legislation to Revise Chapter 37, Section 37.005, RSMo., and Legislation to Revise Chapter 34, RSMo.*

The executive branch of state government currently has the statutory authority to control IT planning and coordination within itself; however, this control is not exercised. This recommendation is to revise state statute and establish and charge an organization with these command and control, Planning functions, while leaving intact and separate the existing services functions which are being exercised. The following are critical collateral subrecommendations.

- a) Create an OIT. Transfer to this agency the command and control, planning functions which are now charged to OA, Division of Data Processing and Telecommunications (DP&T). The Automation Task Force considered that the placement of this new work group is critical to its effectiveness. Based on its summary knowledge from interviews, information collected, as well as experience of other states, the Automation Task Force recommends that this agency be placed in the Governor's Office <sup>(7)</sup>.

Further, the relative standing of the Director of OIT to other cabinet-level officials is critical. It is recommended that the Director of OIT have parity with cabinet-level officials in state government. The compensation package for the director of this agency is very important to securing an individual who can successfully provide the required vision and direction. The Automation Task Force believes that an enhanced compensation package, possibly in excess of that provided current cabinet-level employees, will need to be provided in order to secure an individual with appropriate organizational talent and technical skill in this area.

---

(7) The state agency data processing managers (Appendix D), as a group, have recommended placement of the position in OA (Appendix I).

The following are other major features and functions conceived to be associated with the OIT.<sup>(8)</sup>

- Coordinate the creation and revision of a State IT Plan in accordance with any state-wide strategic planning efforts.
- Organize the development and administer the implementation of an IT strategic training program for all agency upper and mid-management professionals and support staff.
- Convene the IT Planning Board and IT Advisory Board.
- Review and approve all agency IT budgets.
- Through the review of existing and emerging technology standards and issues, direct the statewide adoption of policy, procedures and standards, considering an open systems architecture. (See Appendices G and H for detailed narrative.)

---

(8) There are various other areas of focus which should be addressed by OIT including:

- a. Measures for assessing performance of IT statewide and in agencies throughout state government.
- b. Some agencies among the three branches of government report to commissions and boards and not directly to the Governor. This independence from the executive of government sometimes results in disputes between the Governor and the boards or commissions which are charged with determining the direction and business activities of such agencies. There is a need to establish rules of governance which will serve to bind the boards and commissions of such agencies into common action with other jurisdictions comprising state government. Absent this, whenever an organization with considerable autonomy chooses, they may withdraw from cooperation and conduct IT activities similar to those now seen and which are resulting in some of the problems detailed in this report.
- c. There should be more extensive use of publics to evaluate performance of the state and its various agencies relative to their business practices and performance.
- d. There is a growing number of agencies or portions thereof which are using a propriety product from Texas Instruments called Information Engineering Facility (IEF). It is a new generation CASE tool which assists organizations in defining strategic business processes, where there are overlaps and inconsistencies in functions and applications, and which will generate application code for a variety of computing platforms, including a client-server environment. The broader application of this and other similar tools may offer considerable upside potential for easing agency-wide planning and IT development. It should be investigated further.

- Promote and sponsor new technology research projects via a "technology laboratory" which, through agency participation, would conduct testing of various hardware and software products, examine different operating systems, and examine the latest in open systems technology. Also sponsored would be a "technology information center" which would contain technical information regarding IT and its implementation, and a periodic technology fair which would highlight new promising technologies, innovative IT projects of state government and private business, and so forth (see Table 3).
- Work with the two boards associated with the office to develop a system performance measures, including common metrics, for evaluating the effectiveness of all major IT installations. These measures should be used to determine IT utility rightsizing.
- Surveying the state of IT performance throughout state government considering the state's IT strategic plan, prepare and submit to the Governor an annual evaluation of IT performance with recommendations for change.
- Serve as a liaison to state and national groups.
- Regulate IT procurement to insure compliance with existing state and agency IT plans.

The Automation Task Force debated at length the initial difficulty of establishing the breadth of control which is needed for effective Planning of IT statewide, particularly considering the current decentralized condition of IT decision making and resources. It recommends that the state initially secure the services of a contract employee to establish this agency and begin its administration. This recommendation results from recognition that a period of instability and some tension will undoubtedly exist while forces are being reordered and state-wide Planning is instituted. This is expected to be a very high-risk position in its initial years. Following this period of reordering, the state should consider reverting the

directorship to an employed position. The staffing of this agency should be from existing planning resources in DP&T. Funding for the CIO and support of the technology laboratory associated with this agency could be secured from several sources <sup>(9)</sup>.

The Automation Task Force questioned if implementation was accomplished via contract whether the effort would be perceived by some as one in which the Governor was serious in continuing. In essence, if the issues of providing appropriate compensation, rebuffing the political pressure to retain the status quo, and so forth, would prevent an administrator from being hired as an employee for OIT, hiring a contractor would certainly indicate a lack of conviction to carry through with these recommendations. In such a case, some administrators involved in the change process may choose to delay and be passively resistant waiting for the effort to wain. At that point, activities could revert to the status quo. The Automation Task Force recommends that this consideration remain in the minds of the implementors.

- b) Budget officials in each branch of government should direct their respective agencies and offices to accurately identify all IT expenditures in their annual budget documents and any interim budget requests (see Table 2).

---

(9) The following methods of generating revenue are recommended to be considered to fund various costs in OIT:

- a. Introduce a prorata increase in the current fees paid for administration of statewide computing services (charging for the full costs of services of existing administrators of statewide computing services, including administrators of DP&T, to user agencies and use the funds appropriated now for these salaries to fund the Director of OIT). Individual agencies should realize savings significantly beyond any additional costs.
- b. Develop fee-based value-added data services (e.g., sell or expand access to certain data not now provided outside repository agencies) which could be subscribed to by various private sector business partners. Use the residual receipts to fund this agency. (This should be done, regardless of the use of funds.)
- c. Contact philanthropic private business partners and seek financing for establishing and initially funding the IT agency.
- d. The technology laboratory could be equipped and operations funded through contributions from businesses which seek to do business with the State of Missouri. (There is a precedent for this arrangement in the DP&T education center.) Procurement restrictions should be waived for purposes of securing IT which would be used only in the technology laboratory and for display and testing. The technology laboratory should be staffed by rotating loaned IT professionals from user agencies.

- c) Given the technical nature of IT requests and the need for state-wide coordination, the Governor should recommend to the House and Senate leadership that they have all IT budget requests reviewed by one budget committee for each chamber. Corollaries to this process are the budget review procedures currently used for leases and capital improvements.<sup>(10)</sup>
- d) OIT should be granted the sole authority to approve IT budgets for all branches of state government.<sup>(11)</sup> The authority for such may require an amendment to statute, Chapter 37, RSMo, and include budget review authority. Budget decision items would also be reviewed and approved. A sample of FY 95 budget decision items are in Appendix E.
- e) State statutes which provide for procurement, specifically procurement of any IT-related services or items (emphasis on being broad in what may be included), should be amended to give the authority for approval of procurement of IT to OIT and further, state officials who purchase IT without approval would be personally liable for such purchases and subject to prosecution. The Automation Task Force agreed that this, along with budget approval, is critical to gaining control over IT in state government. Failure to gain procurement and budget authority over IT statewide would significantly reduce the effectiveness of OIT. (See Appendix Q for proposed revision to Chapter 34, RSMo.)

---

(10) Another competing proposal would have all proposed IT expenditures captured in a single budget bill to be considered by the legislature.

(11) Various agencies in state government prepare budgets which are based upon anticipated federal receipts that are affected by workload fluctuations, fee receipts, etc. In cases of significant variation between projected versus actual receipts, agencies need flexibility to vary expenditures. This is especially so when federal funds are concerned which must be returned to the federal government if not spent within specified timeframes. These timeframes often do not correspond with the state's budgeting and legislative calendar. Activities of the Office of IT Planning should support spending of available resources whenever appropriate, considering the statewide and agency-specific Strategic Plan. State agencies should not be constrained from acquiring appropriate IT resources which were not budgeted because of unanticipated revenue growth so long as the proposed acquisition comports to the state and agency business plans.

3. *Executive Order Empaneling IT Planning Board*<sup>(12)</sup>

This recommendation calls for the recomposition and renaming of the Governor's Steering Committee on Information and Data Sharing. The purpose of this board is to consider policy changes and actions, formulate the state's IT strategic plan, and work in partnership with the IT Advisory Board to operationalize the planning strategies. The role of this committee should be formalized and staffing should be provided through existing sources. The Board would be chaired by the Director of OIT. In addition to high-level policy officials from each agency throughout all branches of state government being members of this board, a significant portion of membership should also be private sector business partners of state government, as well as consumers of state government services. The latter groups are critical to bring into consideration the effectiveness of state services to the business/consumer community.

4. *Executive Order Empaneling IT Advisory Board*

This recommendation calls for the formal empaneling of a Technology Advisory Board with the same composition as the existing Data Processing Managers Organization to set technical standards (see Appendix J for detailed discussion), select and sponsor new technology research and development activities (see Appendix K for detailed discussion), and conduct operational and tactical planning. Among the important duties of this board is to provide cohesive planning and communications among appropriate publics throughout state government, and to provide some franchising of the various IT groups which exist and may be developed in the future, including the LAN manager group, the CASE group and others. These are important subgroups whose thoughts and needs should be included in the central thinking regarding IT in state government. Too often in the past, there has not been an adequate forum for controversial, at the time, but potentially productive technologies/applications to be investigated. It is recommended that this Board be given the responsibility of providing an open and objective forum for investigation of any relevant technical issues.

---

(12) According to the Office of Administration's Annual Data Processing Plan (Fiscal Year 1993, p. 3), there are two organizations currently empaneled which could possibly be recomposed and empowered to provide functions of the technical planning and technical advisory committees which are called for in this plan. The current organizations are the Governor's Steering Committee on Information and Data Sharing (composed of policy level officials from each department), and the Data Processing Managers Organization (IT directors from each agency).

The role of this committee should be formalized and staffing should be provided through existing sources. The board would be chaired by the Director of OIT.

5. *Heighten the Role of IT Throughout State Government*

The Automation Task Force recognized throughout its deliberations that agencies reflected the importance they placed on IT in their business activities in where they positioning their agency's IT leader. It appeared to the Automation Task Force that agencies with IT leaders who, in recent years, had been placed in close proximity to the director of the agency, regardless of branch of government, were more progressive in their strategic uses of IT resources. Moreover, this repositioning was only one of numerous actions in such agencies to become more service focused. Similar observations were made in the organizational activities of agencies in other states and private enterprise.

The Automation Task Force recommends that agencies throughout all branches of state government review the positioning of IT leadership in their respective organizations and give strong consideration to upgrading the position held by the IT manager to report to the director of the department or agency<sup>(13)</sup>. (See Table 2 for current positioning.) Further, OA Division of Personnel, along with other directors of personnel offices in state agencies not part of the Merit System, should jointly review the job description for IT leaders and when necessary, revise the duties to reflect active leadership in IT planning and business process reengineering. Resource management should not be the sole or primary duty of IT directors; rather, they should also provide active leadership to promote coordination of IT with the central business activities of an organization. (This was not typically in the job description of IT leaders in state government.)

- 
- (13) The IT director position in agencies throughout state government is sometimes a merit or non-appointed position; in others the director is appointed by the agency executive. Agencies with non-appointed IT directors may consider any benefits which may be derived from changing the directorship to an appointed capacity.



*Timeline for Implementation* - It is imperative that these recommendations be initiated as soon as possible. Specific target timeframes for these recommendations are identified herein. The following timeline is predicated on the state's fiscal year being from July 1 through June 30. The budget development process for a fiscal year begins in the fall of the year prior to July 1 when it is implemented. This is when the agencies and OA, Division of Budget and Planning conduct the process of agency planning and review of budgets. The Governor's budget recommendations are finalized and sent to the legislature mid-January prior to the July when the budget appropriations bills will have been voted out by the Legislature and signed into law by the Governor. This window of opportunity assumes actions can be taken in sufficient time for there to be effects on IT planning and budgeting during the 1996 Fiscal Year.

*September, 1994*

- Write RFB for Director of OIT, or advertise for director.
- Revise prorata charge to agencies using statewide computing services to reflect all relevant salaries and equipment and expense costs associated with OIT. (Appendix P)
- Seek letter of intent from House and Senate leadership to establish office and contract/hire director.
- Identify staffing for OIT and tentatively identify OA staff for reassignment.
- OA budget director advise all agencies to clearly identify all IT expenditures in their budget documents. Budget officials in other branches of government to do likewise.

*September-December, 1994*

- OIT director and staff organized. Agency initiates review of agency IT budgets.
- Draft proposed revisions to statute.
- Execute order to empower IT Planning Board and IT Advisory Board.
- Agencies directed to review IT leadership positions and reposition, as needed.

*October, 1994*

- OIT, along with the IT Planning Board initiates efforts for statewide and agency-specific IT strategic planning.
- Governor to recommend to House and Senate leadership the selection of a single committee in each chamber review all IT budget requests.

*December, 1994*

- Finalize budget reviews of agency IT requests and incorporate in Governor's budget to legislature.

*January, 1995*

- Introduce bills for statutory revisions.

These initial activities will begin operations with others to be specified by the Director of OIT.

*Accountability for Implementation* - Implementation of these recommendations should be directed by the Governor, or his immediate appointee with state agency staff and private sector representatives currently serving on the Automation Task Force of the COMAP acting as consultants. Additional assistance should be provided by the various divisions with existing responsibility for IT, budget and planning, and so forth.

*Potential Costs and Savings* - The recommendations contained herein, if combined with the revenue enhancing methods described, will result in no net cost. However, combined with other recommendations from the Automation Task Force and other task forces relating to reengineering existing business processes to make more intelligent use of IT, they will provide substantial opportunities for redirection of resources and cost avoidance as a result of:

- there being a coherent purpose and direction articulated for the integration of IT to the central business processes of the state and its agencies,
- reducing duplicated services,
- making more efficient use of current IT resources which now are often idle or in marginal use,

- better procurement decisions, thus using financial resources more effectively,
- improved formulation of business processes which will provide business partners with efficiencies and opportunities currently not available, including the results of electronic data interchange (EDI),
- the development of a statewide program for agency administrators to enable them to effectively practice business reengineering efforts which make maximal use of IT resources, and
- other state institutions, i.e, colleges and universities, would have efficient access to state information.

Moreover, they will likely result in substantial improvements in a) claiming additional revenues from fees, licenses, ticket sales, taxes, etc. as a result of more complete, accurate and timely business processes, and b) tax revenues resulting from more effective interaction with private business partners, aiding them to be more productive and profitable.

## **Recommendation #2**

### **Data Center Consolidation**

#### **Recommendation**

Integrate state government mainframe computing resources.

#### **Background**

Since 1974, OA has operated a large data center and offered computing resources to numerous state agencies which purchase computing services in lieu of owning their own mainframe computers. Other agencies have elected to purchase and operate their own mainframe computers. Currently, there are six independent mainframe data centers located in Jefferson City. These include data centers for the Office of Administration's State Data Center (SDC) which serves a number of executive branch departments, Department of Social Services (DSS), Department of Public Safety (DPS), Department of Highway and Transportation (DHT), Department of Labor and Industrial Relations (DLIR), and Department of Elementary and Secondary Education (DESE).

Three factors are common to the six data centers and make consideration of sharing resources important: a) all are based on essentially the same software technology; b) all plan to continue operating large mainframes for some time, and c) all report that expansion of capacity will be necessary in the future. In recent years, both public and private sector enterprises have successfully proceeded to consolidate multiple large computing operations to achieve economies of scale. (The University of Missouri-Columbia currently has a project underway to consolidate three mainframe data centers into one.)

With the exception of the SDC, the other mainframe data centers support departmental missions.<sup>(14)</sup> These data centers are funded through their respective departmental budgets, except for the SDC which operates under a revolving fund.

---

(14) The DSS provides mainframe computing to the Department of Health (DH). Formerly, DH was part of DSS, but is now an independent agency.

Historically, there has been little incentive for departments to work cooperatively in the area of IT consolidation. Departments may be reluctant to give up their mainframe processors due to fear of losing control over the implementation and execution of applications. For this reason, it is recommended that the affected departments participate in the development of a plan that does not jeopardize their respective missions.

## **Rationale**

Mainframe computing should be considered a utility, similar to telephone and electric service, which offers computing resources as its product. Private industry has embraced the practice of consolidating large computing resources as a means of procuring critical IT services but doing so at minimal cost.<sup>(15)</sup> It is assumed that the state's objective is also to secure high quality computing resources at the lowest cost. Operating six independent data centers in Jefferson City does not achieve this objective, nor is it functionally necessary.

Consequently, it is recommended that the state move decisively to consolidate these data centers. This includes combining the mainframe hardware, software, system programmers, operators and support technicians. Departments should retain their application development staff and other specialized operations.

Consolidation is a complex project and requires careful planning. However, it has been accomplished successfully in many organizations. Research indicates that mainframe hardware, software, maintenance, utility, and personnel costs will be reduced, while performance and reliability will be improved. Additionally, increasing the scale of the data centers makes sophisticated automation tools more affordable, which can further reduce operating expenses. By reducing its mainframe data center costs, the state can redirect funds to address critical IT needs.

Sharing computing resources has long term benefits for the state. Moving in this direction will force the reengineering of inefficient work processes, thus causing the state to provide the same or better level of service more efficiently. Future inter-departmental projects will be easier to implement

---

(15) Wisconsin, a state of comparable population to Missouri, achieved savings in excess of \$11 million in the first two years of its data center consolidation project. It was running three large data centers and consolidated to one. Wisconsin was able to reduce the number of operations staff from 121 to 93 through reassignments and attrition. For more information contact Jon Stu Miller, Deputy Administrator of Info-Tech Services, Wisconsin State Government, (608) 266-7066.

once the departmental lines are softened by cooperative processing. Applications such as information kiosk, Missouri Card, and accessing the information superhighway will be facilitated by this infrastructure realignment. Management direction is the key to initiating this process of resource sharing.

## **Implementation**

Data center consolidation is a major decision that requires management commitment, coordination, in-depth planning and a knowledgeable, professional staff. It is recommended that the data centers move toward consolidation through a two-phase internal effort designed as follows.

*Phase I* - The data centers should fully cooperate in acquiring common goods and services. These include mainframe hardware maintenance, software licenses, contractual support, and similar items. Since mainframe suppliers are faced with a shrinking market share, large buyers hold an advantageous position. The combined scale of the six data centers acting as a single buyer should result in sizable discounts. For example, group purchasing of hardware maintenance and software licenses is expected to result in a cost avoidance of \$500,000 annually (less than current expenditures). This phase should be implemented as soon as possible. The savings from this phase would be used to fund the second phase of the project.

*Phase II* - To begin the second phase, the Governor through an executive order, should direct departments with mainframe data centers to move toward consolidation through a joint planning process. This process should be under the direction of the Director of OIT. The planning group should be the IT Planning Board, in cooperation with the IT Advisory Board, which would determine the most appropriate consolidation solution, including the number of data centers ultimately required, center location(s), the management structure, disaster recovery considerations, and an implementation timetable.

It is recommended that the Governor establish a deadline for a report from the IT Planning Board on the outcome of their review. This should be completed by January, 1995 so that any resulting financial changes could be incorporated into the FY96 budget process.

*Strategies* - The following strategies are recommended:

*1. Consolidate Three Small Mainframe Data Centers (HT, LIR and DESE).*

These centers should purchase necessary mainframe service from OA, SDC. Based on current budgets, approximately \$2 million of current expenditures could be eliminated. Some expenses would be replaced by

payments from these departments for computer services. Current SDC customers will experience a reduction in payments as a result of better utilization of information resources. (See table on page 28)

## **2. *Study Consolidation of Large Mainframe Centers.***

The DSS, DPS and OA data center operations should be reviewed for consolidation benefits. Since all have sizable and expanding operations, additional significant resource redirection will be realized by consolidating the larger data centers. Facilities will have to be studied to determine whether current space could be used or whether a different, suitably sized facility would be needed. Existing hardware and software resources should be optimized in any consolidation plan.

Any data center in the state providing processing service to another agency should develop service level agreements for the provision of such services. These agreements are intended to hold the provider of the service accountable for the response times, uptime and other criteria provided to customers. Cost recovery/chargeback processes must also be developed to support the provision of services.

Following physical consolidation, logical consolidation of applications should take place, as appropriate. Agency IT Strategic Plans should be used to realign business processes. Potentially some redundant administrative applications could be eliminated. Some strategic applications may be more effective if placed on different computing platforms, such as mid-range processors or microcomputers. Realigning applications will be time consuming, but will produce significant benefits to the state.

***Timeline for Implementation*** - The proposed timeline assumes the complete cooperation of all data centers and the agreement that some combination of centers will be achieved. It also assumes that budget flexibility with accountability will be provided by OA, as well at the Legislature. Since data center consolidation is a major decision by state government and there appear to be substantial savings in a relatively short time, it is recommended that the process be started immediately, but no later than September 1, 1994, if possible.

***September, 1994*** (begin Phase I - Cooperation on acquisition of goods and services by all data centers.)

- Establish working group for cooperation on acquisitions consisting of representatives from each data center, the Division of Purchasing and OIT.

- Prepare a letter of intent and agreement for use in acquisition and joint operation of the working group on purchasing.
- Establish subgroups to specialize in areas of mutual initial agreement (including but not limited to hardware maintenance and software licenses) in order to effect savings immediately and allow funding for the beginning of Phase Two.
- Review all current contracts of all data center establishing joint criteria and preparing notices necessary to vendors.
- Convince the budget officers of each agency which operates a data center to establish the future process for identifying and allocating funds.

It should be noted here that any area of mutual interest/concern which is now being addressed should be incorporated into Phase One of this effort.

*October, 1994*

- Continue activities begun to assume savings through common purchasing.
- Present letter of intent to all involved agencies for approval and forward to Office of Governor, OA and the appropriate legislative offices.
- Continue work of subgroups and begin actual joint purchase of items selected in the initial process.

(Begin Phase II - Cooperation on acquisition of goods and services by all data centers.)

- Establish in each agency an office to assist with the planning and implementation of the consolidation of the present data centers. This office should be at a level to allow easy access to the agency director and insure complete cooperation. All executive agencies should be involved in order to insure the development and progress of all departmental operations. Issues which involve legislative changes other than budget should be identified at this time and a working group established to draft changes.
- Prepare executive order from the Governor directing departments to move toward consolidation (prepared by OIT).
- Assignment of IT Planning Board as the planning group.



Assignment to the IT Advisory Board responsibilities and position with the consolidation plan. It is imperative that this planning group complete its initial work in order to meet the deadline of January, 1995 established by Governor Carnahan and to allow budget and preparation for other considerations.

*December, 1994*

- Identify initial savings from purchasing consolidations and report to appropriate parties.
- Quantify savings to be accrued by consolidation and prepare additional financial recommendations for OA.
- Review legislative issues and follow with preparation of draft legislation, as necessary.

*January, 1995*

- Present consolidation plan to Governor.
- Review funds for redirection from Phase One and determine redirection plan.
- Charge execution of the consolidation project to OIT. The consolidation should be finalized by approximately May, 1995.

*Accountability for Implementation* - Implementation of these recommendations should be directed by the Governor, or his immediate appointee with state agency staff and private sector representatives currently serving on the Automation Task Force of the COMAP acting as consultants. Additional assistance should be provided by the various divisions with existing responsibility for IT, budget and planning, and so forth.

*Potential Costs and Savings* - Ideally, all mainframe operations would be performed in one physical and logical data center. Research studies show that the greatest efficiencies are received on data centers that would be the size of one consolidated Missouri state data center. Larger data centers can be run with proportionately fewer people. Various professional organizations which study such management structures provide estimates which indicate a consolidation effort in Missouri government would result in significant annual savings over current practices. Net cost avoidance has been estimated to be in excess of \$3 million if all six data centers are consolidated. This has been verified to be reasonable by an independent technology research firm. This

amount considers that there will be costs associated with the actual consolidation effort, primarily during the year in which the effort occurs.

	OA	DSS	PS	HT	LIR	DESE	Total
Staff Positions	60	30	27	12	20	5	154
Salary and Benefits (\$)	2,088	1,214	912	564	636	163	5,577
Hardware (Ls/Purch) (\$)	1,020	1,800	936	0	0	75	3,831
Hardware Maintenance (\$)	720	504	228	104	136	36	1,728
Software Lease (\$)	1,524	0	516	0	0	62	2,102
Software Maintenance (\$)	624	960	228	336	510	26	2,684
Utilities (\$)	84	60	42	30	30	12	258
Space/Facilities (\$)	240	220	43	42	54	10	609
Total							16,943

Source: Department data center managers, 6-94.

Legend: OA = Office of Administration, DSS = Department of Social Services, PS = Department of Public Safety, HT = Department of Highways and Transportation, LIR = Department of Labor and Industrial Relations, DESE = Department of Elementary and Secondary Education.

- Notes:
- Dollars are displayed in increments of \$000's.
  - All figures are annualized and reflect current expenditures.
  - Utility costs were estimated.
  - Space was assumed to have a value of \$10 per square foot.
  - Personnel includes only system programmers, network staff, and computer operations.

The following calculations were used to derive the savings opportunities.

- Purchase products/services cooperatively.
 

Hardware maintenance (\$1,728,000 * 15%)	= \$	259,200
Software maintenance (\$2,684,000 * 10%)	=	268,400
Total savings	= \$	527,600
- Consolidate three smallest data centers (HT, LIR and DESE)
 

Personnel (\$1,363,000 * 15%)	= \$	204,450
Hardware (\$276,000 * 75%)	=	207,000
Software (\$872,000 * 75%)	=	654,000
Utilities (\$72,000 * 85%)	=	61,200

Space (\$106,000 * 80%)	=	<u>84,800</u>
Total Cost Avoidance	= \$	1,211,450

3. Outsource mainframe computing (\$16,967,000 * 30%)	= \$	5,090,100
--	------	-----------

To tangibly reward consolidation, it is recommended that participating agencies should be allowed to apply the resulting savings toward viable automation projects which have not been funded or have been underfunded. This approach would allow the state to replace significant backlogs of programming staffs, and to take advantage of new technology without increasing expenditures. Among projects of greatest priority is providing appropriate disaster recovery services. Such services are critical for any organization which provides IT services. It is recommended that FTE which cannot be absorbed within an appropriately sized consolidation should be retrained and/or reduced through attrition.

The current data center management and staff are capable of achieving the savings identified herein. If however, the Governor finds the internal efforts toward consolidation to be ineffective, similar cost savings could be achieved by outsourcing data center operations according to the NASIRE report "Outsourcing...January 1994." To date, no state has totally outsourced data center operations. Specific functions, however, such as the processing of Medicaid claims and lotteries have been successfully outsourced in many states, including Missouri.

### **Recommendation #3**

#### **Data Network Consolidation**

##### **Recommendation**

Consolidate the state telecommunication networks to improve management, planning, operation, and expansion of available functions.

##### **Background**

The data network maintained by Missouri state government consists of numerous independent, high speed communications networks, primarily dedicated to single state agencies, resulting in significant resource duplication and uncoordinated planning. Agencies typically design, install, operate, and expand their data networks with limited regard for sharing of equipment and communications bandwidth. The result of this infrastructure is a costly and ineffective statewide data network environment.

##### **Rationale**

A high speed data and voice communications network is an essential element in the state's ability to provide expanding services while containing costs. While the existing voice network has largely accomplished this objective, the current independent data networking environment represents significant opportunities to:

- provide better services to the public,
- reduce duplication of current data network services and thereby, generate significant cost savings,
- provide an organizational structure to enable a coordinated focus on statewide data communication network planning,
- consolidate development of networking standards and research funding on evolving network communication technology products,
- provide immediate cost avoidance opportunities associated with reductions in current agency and departmental network enhancement and deployment initiatives; agencies included are the Departments of Revenue, Social Services, Elementary and Secondary Education, and Highway and Transportation, state courts, schools, and public libraries.
- leverage the state's telecommunications staff expertise across departmental

boundaries to expedite the deployment of tomorrow's communications infrastructure, and

- provide the ability to transition to modern, high-access applications (including interactive video) which will be otherwise impossible without a streamlined, efficient telecommunication environment.

Missouri government successfully manages its voice communications infrastructure across all agencies and departments through OA, DP&T. This organizational structure has led to an effective means of planning, installation, maintenance, contracting and management of voice communication services.

In contrast, data communication networks are left to the discretion of each agency. Only the purchase of network services and equipment is channeled through OA. This independent structure has led to an absence of actual bandwidth management, fragmented connectivity across state agencies, and duplicative services and associated costs.

An effective data communication network infrastructure is required to meet the expanding service needs of the state. Several other states have started the planning, development and installation of their communication systems and are positioning themselves to offer significant improvement in services to the citizens of their respective states. Missouri must address this issue quickly in order to develop the communications infrastructure required to enable high quality services in the future.

## **Implementation**

*Strategies* - The following strategies are recommended.

### ***1. Consolidate the Management of Voice/Data/Video Communication Services into OA***

The communication environment of the future will require the "merger" of voice, data and video services into a single network architecture. New application software already utilizes all of these communication modalities into a single workstation environment. A single, consolidated departmental structure needs to establish a management structure which promotes the coordinated planning, design, implementation and support of a state wide voice, data and video network.

The Automation Task Force discussed the relative merits of contract bandwidth management versus state management. Given the relative complexity and rapid evolution in this area, it is recommended that these

options be studied further in order to select an appropriate management strategy.

2. *Consolidate Agency Network Staffing into OA*

Significant data network staff and equipment resources are spread across state agencies. Consolidation of these staff and network equipment assets into a single network communications section in OA could enhance network planning, installation and support issues while insuring coordination of all network communication activities.

Those departments headed by boards or commissions that have considerable constitutional autonomy should be encouraged to cooperate with OA to better meet their own networking needs while improving the cost effectiveness of state government. The success of these departments in utilizing the state telephone system managed by OA should serve as a model for other joint telecommunications ventures.

3. *Develop a Statewide Network Communications Plan*

This plan should forecast requirements for a 3-year horizon, assess the architecture needed to support the state's communications infrastructure for the next 10 years, and identify immediate cost savings opportunities associated with statewide network consolidation. This planning process should examine the comparative costs of lease versus purchase of key components of the state's telecommunications infrastructure. Based upon departmental interviews, the Network Communications Plan should be developed by OA and made available to all agency heads for review and comment. It is recommended that the plan be completed by December, 1994.

4. *Develop Technology Standards Related to Network Communications*

In coordination with the IT Advisory Board, OA should participate in the creation of statewide voice, data and video network communication standards. Such standards should identify products and services (including network protocols, software and equipment) which will be used to develop a single statewide communications access system. These standards will also define the suite of network products to be supported by OA, DP&T. Representation from higher education institutions is critical in this process. It is recommended that an initial set of network standards be developed by December, 1994, in concert with the development of the Network Communications Plan.

5. *OA Should Develop Service Level Agreements Which Outline Expectations for User Voice, Data and Video Network Services*

As the prime network services provider to state agencies, OA must proactively develop user service level agreements which document standards pertaining to network services. Developed with departmental user input, these service level agreements should provide users with a set of expectations for holding OA accountable for centralized network services.

Agency cost recovery/chargeback processes should be developed to support the consolidation of telecommunication services into OA, DP&T. As a result of the consolidation of all telecommunication staff and equipment resources into OA, DP&T all primary voice, data and video communication expenditures should be presented as a component of OA, DP&T annual budget package. Similar to the existing voice communications environment, however, an agency cost recovery/chargeback process should be developed related to OA, DP&T's management and support of all telecommunications services. The chargeback process should focus on cost recovery (no mark-up) for total network services rendered and be directed at the state agency receiving those services.

*Timeline for Implementation* - It is imperative that these recommendations be initiated as soon as possible.

**December, 1994**

Based upon departmental interviews, develop a Statewide Network Communications Plan.

Develop an initial set of network standards.

*Accountability for Implementation* - Implementation of these recommendations should be directed by the Governor, or his immediate appointee with state agency staff and private sector representatives currently serving on the Automation Task Force of the COMAP acting as consultants. Additional assistance should be provided by the various divisions with existing responsibilities for IT, such as DP&T, budget and planning, and so forth.

*Potential Costs and Savings* - Consolidation of the numerous independent networks will reduce duplication of services and result in an annual savings over current practices. Net cost avoidance has been estimated to be in excess of \$780,000 if all major networks and support are consolidated. It is again

recommended that FTE which cannot be absorbed within consolidation be retained and/or reduced through attrition.

### Data/Video Communications Budget Analysis

Agency	Salary	Benefits	Equipment	Other	Circuits/Serv	Total
MO Lottery	24	10	6	2	2,726	2,768
DSS	437	185	227	44	619	1,512
DLIR	346	138	65	35	257	841
MOREnet	120	48	232	12	160	572
Office of Admin.	83	24	156	8	292	563
Highway Patrol	230	92	86	23	108	539
Dept of Corrections	50	20	78	5	235	388
Dept of Revenue	42	17	24	4	176	263
Dept of Mental Health	35	14	37	4	135	225
Dept of Highway/Trans	48	19	7	5	97	176
<b>TOTAL</b>	<b>1,415</b>	<b>566</b>	<b>918</b>	<b>142</b>	<b>4,805</b>	<b>7,846</b>
<b>10 % SAVINGS</b>	<b>141</b>	<b>56</b>	<b>92</b>	<b>14</b>	<b>481</b>	<b>785</b>

Source: June, 1994 Survey of Agencies.

Notes: "Other" column comprises personnel expense and equipment costs.

- a) All figures are annualized and expressed in \$000s.
- b) MOREnet is an acronym for Missouri Research and Education Network. It is operated by the University of Missouri-Columbia under contract with DESE and serves as Missouri government's hub to the Internet.



## **Appendices**

## **A. Explanation of Terms**

**Business process reengineering:** Examination of central business activities associated with performing the mission of the organization. Study should focus on whether the assumptions originally used to develop the business process are still relevant. If not, the process may be discarded. If so, the process should be reviewed in detail how it is associated with other appropriately designed business processes. Many business processes may be found to contain inefficiencies and redundancies which can be aided, in part, through the application of information technology. Reengineering efforts should not be incremental, not associated with other "management/productivity improvement programs (e.g., TQM, etc.), and can assist in identifying means of achieving orders of magnitude improvements in business performance.

**Computer Aided Software Engineering (CASE) Tools:** CASE tools are a set of interrelated computer programs that standardize and automate the application systems development process. By generating code from system diagrams, industry publications report that these tools can increase development productivity by a ratio of 2:1 to 3:1. In addition to shortening the development process, CASE tools have the following advantages over traditional systems development.

**Improved communication between users and IT professionals:** Because CASE tools provide easy to understand diagrams, much like the blueprints architects use, system concepts can be communicated to users much more clearly. With better communications, systems can be developed which are more responsive to users.

**Structured development process:** CASE tools structure the development steps and thereby produce a standard set of outcomes. This reduces the large variance ordinarily found in conventionally developed systems and makes CASE developed systems easier to maintain and enhance with reported productivity gains of 5:1 to 10:1.

**Automated generation of computer programs:** This eliminates the manual writing of computer code and the attendant coding errors, thereby allowing users and IT professionals to spend more time defining systems requirements.

Pieces of CASE started to appear in the market place in the early 1980s. Some products assisted in analysis and design. Others generated computer code. It has only been in the last three to four years that fully integrated tools have become available. These integrated tools combine analysis, design, and code generation into a seamless tool that makes significant productivity gains possible.

**Client-server architecture:** The use of multiple computer platforms interactively such that significant data resources are maintained on a large platform, e.g., mainframe or minicomputer, with access to such for downloading and processing to the LAN and PC to maximize the power of the PC for processing and manipulation. Applications developed for a client-server environment use the resources and strengths of multiple computer platforms interactively with limited, if any, intervention by the user.

**Computer network:** For this application, computer network refers to the sum of all the parts of an integrated system of computers, including mainframe, midrange and PCs, regardless of their relative physical distance apart. Thus, an agency's computer network may indeed be a statewide system by which all users, regardless of physical remoteness, can communicate and share network resources, including data, powerful processing units, and so forth.

**Electronic data interchange (EDI):** The exchange of data and documents between different users according to standardized rules.

**Graphical User Interface:** An obvious direction in the computer industry is the adoption of the graphical user interface (GUI) as the method of choice in communicating between the computer user and the computer system. GUIs provide both a common menu structure and a common look and feel between applications running in a particular environment. The key benefit to this commonality is a transfer of learning from one application to another.

Another characteristic of GUIs is the use of icons, small pictures indicating software selection, or some sort of functionality or system action. Icons typically convey information in an intuitive manner rather than forcing the user to memorize command syntax. The combination of the more intuitive icons with a standardized menu structure and location, assists the user in learning and using a computer system more productively.

In indication of industry direction is reflected by the inclusion of a graphical user interface in the majority of PCs sold today.

**Hardware:** All or part of the physical components of an information processing system, such as computers or peripheral devices.

**Information chain management:** This refers to the fluid communication of strategic business information among the state and its business partners. For state government it present a true value-added product for citizens. A very simple example of a current practice is for a state agency to allow wire transfer of entitlement payments to certain payees of state programs (e.g., school districts, nursing homes, etc.). Another example, although not currently done

and more complex than current practice, is for the Division of Employment Security to make on-line access (including file transfer) available to its files regarding claimants of the Unemployment Insurance Fund. Employers pay into this insurance fund for use by their employees who are laid off. At the present, employers don't know in real time which laid off workers have filed for unemployment insurance and the date they may begin drawing upon the employer's contributions. If the employer knew this information and when they needed to rehire workers they could rehire those about to draw insurance, they could a) reduce the draw on their contributions and by so doing could b) prevent their contribution rate to the Unemployment Insurance Fund (a percentage of wages paid) from increasing. The wide application of IT to information chain management practices could dramatically affect decision making and cost savings for the state and many of its business partners.

**Information technology:** This refers to the sum total, e.g., gestalt, of hardware, software, and the applications possibly using such to impact a business process. The intelligent application of information technology can result in expert systems which truly change the way business is conducted and cause dramatic improvements in productivity and effectiveness. It is not the application of computers and software to simply speed up an existing process.

**Infrastructure:** The underlying foundation or basic framework of a system.

**Intelligent Workstations:** Industry use of PCs is a response to user demands to be freed from the constraints of centralized data processing, to shorten the development cycles, to freely manipulate and display information, to improve response time, and to have access to better tools. Users are demanding flexibility beyond what can be economically justified by corporate IT, and the PCs meet that demand. There are now thousands of application software packages available to improve personal productivity.

The PC has further enabled distributed processing. A terminal is nothing more than a desk ornament without a mainframe or minicomputer host to provide processing and display capability. The more terminal users demand host services, the larger the host capacity requirement becomes. Personal computers provide their own processing and display capabilities, and make fewer demands upon the host. While PCs may attach to a host, either directly or through a local area network (LAN), to send and receive data, the processing of these data and their presentation can be entirely self contained within the PC. By taking this approach, capacity requirements are transferred from the host to the PC. Since PC processing power is highly scalable with extremely small incremental costs in comparison to minicomputers and mainframes, the result is the capability:

- to reduce host demand and defer high cost growth increments, and
- to target the processing needs of a specific user, thus providing exceptional response time.

This second point bears close consideration. In the mainframe and minicomputer environments, as demand for resources increases, response time degrades. The demand may be spread over many users, or it may result from a single user or application drawing heavily against specific resources. In either case, response time degrades for all users. If these demands are ongoing, the only real solution is to upgrade the mini or mainframe in order to maintain satisfactory response times.

This contrasts with the PC environment where the single user impacts only his own response time in processor intensive applications. Should the user find this unacceptable, only a single workstation need be upgraded. This level of granularity, both in terms of cost and specific user targeting, is the reason the industry is choosing to employ the PC as the workstation of choice.

**Local Area and Wide Area Networks (LANs and WANs):** Within two years of the introduction and acceptance of PCs in the corporate world, end users began to see the limitations of a stand alone PC. There was a need for sharing and accessing information and resources. This set the stage for the development of physical networks, network operating system software, and file and print servers. These networks of PCs and other resources are known as local area networks (LANs).

The network industry has grown by 40-50 percent annually and in 1991 it had reached roughly \$8 billion in annual sales. LANs have been installed everywhere from the federal, state, and local government levels, through Fortune 1000 companies, hospitals, educational institutions, down to the local video rental store.

Industry analysts predict shifts from LANs, which are assumed to already be in place, to WANs in an effort to leverage existing investments into regional, national, and international networks.

**Mainframe:** A computer, usually in a computer center, with extensive capabilities and resources to which other computers may be connected so that they can share facilities.

**Personal computer:** A microcomputer, primarily intended for stand-alone operation but may be connected to mainframes or networks.

**Relational Database Structure:** The relational data model is currently the most popular because it is conceptually simple and understandable. Major strengths of relational database management systems (DBMSs) are flexibility in creating ad hoc reports, the ability to combine and distribute information from different sources, simplicity of design and maintenance, and the ability to add new data and records without disturbing existing programs and applications.

Relational databases are compatible with a large variety of PC and other commercial software. Structured Query Language (SQL) is rapidly becoming an industry-wide standard for accessing relational databases.

**Server:** A computer can be used to store high access local data (database server), share resources such as printers (resource server), and/or provide access to other computers and outside services (gateway servers). Servers can be mainframes, minicomputers, or PCs. The choice of platform depends on system size and deployment as well as what specific functions the server will perform.

The industry is moving toward using the PC in server architecture because of the significant cost advantages. Additionally, user friendly PC front-end tools allow interaction between a PC, a PC server, and the mainframe.

Minicomputers can be used as servers, but the software tools that would enable the seamless interaction between the minicomputer, PC, and the mainframe platforms are not widely available. Mainframes can be used as servers, but their expense has caused the industry to consider it the server of last resort.

**Software:** All or part of the programs, procedures, rules, and associated documentation of a data processing system. Software is an intellectual creation that is independent of the medium on which it is recorded.

**Strategic Planning Process:** Through the determination of its values, mission and goals, an organization may begin to arrive at its strategic business direction and needs, e.g., vision. It can then establish its goals, objectives and implementation strategies. The composite of these activities and their outcomes comprise the organization's Strategic Plan.

**Use of Multiple Platforms:** The industry direction today is toward the use of multiple platforms, the intelligent workstation, the server and the mainframe. This strategy provides the opportunity for system architects to select the appropriate processor(s) to meet specific user needs and maximize price performance. Regardless of the platform, the two most costly equipment components are processors and mass storage devices.

This dramatic cost differential is driving the industry to consider the use of

smaller platforms where practical. Regardless, there is significant resistance among many high level administrators, and others who have become secure in a mainframe environment, to acknowledge these facts and to move toward more cost effective options. This sentiment has been reflected in the recent discussion regarding rightsizing.

## **B. Essential Elements of An IT Strategic Planning Model**

Participants in contemporary strategic planning must possess a conceptual understanding of the capacity of information technology to impact the design and productivity of business processes. For many business processes, IT may be a more significant resource to productivity than the human resources which have been or could be involved. **This reality is counter to the traditional thinking that greater productivity is always associated with more person hours on task, and will require planners and administrators to set aside some traditional assumptions about program administration. This may necessitate retraining of some or many administrators in organizations.**

### **Planning Steps**

1. Recognize and be prepared to accommodate and support the culture requirements for effective organizational planning and the inevitable mandate for change to current business processes.
2. Determine organization mandates and requirements. Reevaluate assumptions, old or new. IT planning should conceive its mandate to be to support those contained in the State's strategic plan.
3. Arrive at the organization's mission, values and the need to develop and maintain a vision of the organization in relation to its publics, mandates and opportunities.
4. Considering the organization's vision, values and mission, determine the strategic issues which concern and affect the organization. Reevaluate assumptions, old or new.
5. Establish organization goals, objectives, strategies and action plans. Link the business needs with existing support capacity and differentiate among available and needed services, available and unneeded services, available services which are needed but require change, new services which need to be secured.
6. Determine a realistic evaluation process and performance measures.
7. Derive a resource acquisition program to provide the capacity needed to address the strategic plan.
8. Business perspectives from the users of the information



As in many other businesses, the skill sets of employees must change over time. This is especially true for persons who work in IT. Organizations which fail to plan for and support the changing skill set of IT professionals will have a corresponding affect on their productivity and competitiveness, and that of their parent organizations.

**C. LAN Users Group Presentation Before COMAP Automation Task Force,  
June 17, 1994**

**1. Significant Conclusions of LAN Survey:**

(missing Corrections, Econ Dev, Health, Higher Ed, DNR, most political offices, University of Missouri and miscellaneous other colleges)

Supposedly, 20,000 microcomputers in FY 93 according to OA DP&T Annual Data Processing and Telecommunications Report and Plan.

Survey respondents showed 86.5% microcomputers networked.

FY94 estimated invested value in microcomputers and LANs:  
\$ 36.9 million.

Expected FY95-96 LAN expenditures: \$ 63.2 million.

Growth rate of microcomputers/LAN over last 5 years:  
10 - 3000% (some have been established from start with PCs).  
Most are in range of 300 - 600%.

Expected growth of LAN for next 2 years:  
0 - 2500% (only one agency expects to stay on AS/400).  
Most of growth is 20-30% range.

Expected use of microcomputers in daily work:  
25 - 100% of all department workers. Some lower values have high levels of employees performing manual tasks. Majority of agencies expected 80% or greater to need microcomputers in daily work in the future.

Expected Advantages of: data sharing, flexibility, increased productivity, scalability, communications, E-mail, etc.

Expected Disadvantages of: costs, management, user training, lack of standards, increased need for support personnel.

Significant cost savings and indirect benefits difficult to measure. LAN and PCs do NOT necessarily cost less. Benefits difficult to measure such as increased productivity, efficiency, greater flexibility are present.

Establishing training for a statewide basis of advanced or certification of network operating systems would have little benefit since most agencies

favor specialized emphasis of their own environment. Beginning or introduction level training may reach levels which might reach levels where some common training might be cost effective.

2. Lack of Networking Leadership and Coordination

Resulting in Duplication of effort/costs.

Expect Data Network Consolidation to address these needs.

3. Improvement in Purchasing issues.

Know that other task force looking at this issue, but that it has important impact on networking. Dynamic market with changing technology MUST be responsive to those directly working on networking issues to implement cost-effective solutions.

4. Other Specific Issues.

Two other areas related to multi-protocol WANs through Frame Relay telecommunications and network address standization. Discussion to be lead by Dave Johnson of Highways and Transportation.

LAN User Survey for COMAP  
6/17/94

Connected Pentium  
to LAN? 486 386 286 8088 MAC  
total

Agriculture	51		25	26			51
Auditor	60	27	54	32	26		139
Conservation	400	243	287	77		17	624
Elementary and Secondary Education	335	100		235			335
Employment Security	417	378	38	1			417
Highways and Transportation	2050	1000	750	300			2050
Highway Patrol	210	188	16	1	5		210
Insurance	125	180					180
Mental Health	1200	671	466	201			1338
Office of Administration	416	416	170				586
Public Safety	200	200					200
Revenue	176	58	26	57	35		176
Senate	32	32	30	9	30		101
Social Services	200	100	50	40		10	200
MO Lottery	112	2 103				9	112
Totals	5984	2 3696	1912	979	96	36	6719
Missouri Western State College	160	20	170	130	150	255	725
Missouri Southern State College		200				20	220
Northwest Missouri State University	200	75	75			50	200

LAN User Survey for COMAP  
6/17/94

	Current Invested Value	Estimated Budgeted FY95/96	Applications
Agriculture	25,000.00	50,000.00	WP,DW4,Lotus,Excel,dBase
Auditor	300,000.00	150,000.00	WP, Spreadsheet,Acctng, Audit, E-mail, Calendar
Conservation	2,775,000.00	1,000,000.00	
Elementary and Secondary Education	250,000.00	250,000.00	WP, Spread, dBase, imaging
Employment Security	2,819,000.00	200,000.00	Image, WP, Spread, dbase, BBS
Highways and Transportation	20,000,000.00	10,000,000.00	Drafting, GIS, WP, Spread, dbase
Highway Patrol	840,000.00	800,000.00	Image, WP dbase, Wireless Comm
Insurance	1,424,800.00	200,000.00	WP, Spread, dbase, host emul, E-mail, calendar
Mental Health	3,700,000.00	675,000.00	WP, Spread, Presentation, E-mail, calendar, Inp
Office of Administration	1,713,200.00	366,000.00	WP, Spread, E-mail, Office systems, image
Public Safety	1,400,000.00	150,000.00	WP, Spread, dBase, Desktop Publishing
Revenue	312,000.00	180,000.00	WP, Spread, dBase, Desktop Publishing
Senate	135,000.00		Secretarial work, bill drafting/research
Social Services	800,000.00	49,000,000.00	FAMIS, MACSS, E-mail, WP, Spread, image
MO Lottery	195,000.00	160,000.00	WP, Spread, E-mail, Comm., calendar, scheduli
Totals	36,689,000.00	63,181,000.00	0
Missouri Western State College		340,000.00	
Missouri Southern State College	500,000.00	130,000.00	
Northwest Missouri State University	1,000,000.00	100,000.00	

LAN User Survey for COMAP  
6/17/94

Estimated Growth over last 5 years	Estimated Growth LAN over next 2 years	Percent needing PCs in job next 2 yrs
---	---	--

Agriculture	300	75
Auditor	300	33
Conservation	750	20
Elementary and Secondary Education		10
Employment Security	3000	30
Highways and Transportation	600	70
Highway Patrol	1200	200
Insurance	400	10
Mental Health	3000	25
Office of Administration	143	
Public Safety	400	25
Revenue	75	30
Senate	20	30
Social Services	150	2500
MO Lottery	10	5
Totals	10348	2988
Missouri Western State College	180	200
Missouri Southern State College	200	100
Northwest Missouri State University	100	20

LAN User Survey for COMAP  
6/17/94

Advantages

Cost  
Savings?

Agriculture  
Auditor  
Conservation  
Elementary and Secondary Education  
Employment Security  
Highways and Transportation  
Highway Patrol  
Insurance  
Mental Health  
Office of Administration  
Public Safety  
Revenue  
Senate  
Social Services  
MO Lottery  
Totals

Daily tasks  
Productivity, job performance, efficient communications  
Shared info  
Conn, Prod.  
  
Scalability, effective  
end users  
Productivity  
data sharing, commm.,  
Flex emul, job variety, data access  
Flex, availability, use, economy  
data share, stds,  
self control prestige  
data availability, sharing  
E-mail, Comm.

-1900

3000

N/a

significant  
none, increase pr  
indirect

250000

best choice for jol  
5-S/36 replaced  
no definate  
none  
in broad sense

0

251100

Missouri Western State College  
Missouri Southern State College  
Northwest Missouri State University

E-mail, Sharing, info retrvl, Productivity  
UPgrades easier  
Comm

efficl, Prod  
no  
effic, effect,

LAN User Survey for COMAP  
6/17/94

Agriculture  
Auditor  
Conservation  
Elementary and Secondary Education  
Employment Security  
Highways and Transportation  
Highway Patrol  
Insurance  
Mental Health  
Office of Administration  
Public Safety  
Revenue  
Senate  
Social Services  
MO Lottery  
Totals

Missouri Western State College  
Missouri Southern State College  
Northwest Missouri State University

Disadvantages

Backups

Remote Admin

Cost, Inv mgt, Integration, stds., expertise

mgt tools not mature

support

user education

labor intensive maint., costly upkeep

Equip cost, user training, software conflicts, stds

LAN care/support

cost, stds, lack of experience

administrative efforts

Administration

cost, training

Support

Cost maintenance



LAN User Survey for COMAP  
6/17/94

	How LAN/WAN Administered	Relationship LAN Mgt to Traditional Data Proc.	Education Certification	Statewide Training Needs
Agriculture	1 DP staff	DP only	self taught	3-5
Auditor	Prof. LAN Admin	LANs only	Some	0
Conservation	CSpec, Central	Diverse	DP Trainer	6-8
Elementary and Secondary Education	LAN Admins	Section	CNE	2
Employment Security	in Sections/EDP		CNE	0
Highways and Transportation	section/EDP	Design	1	20
Highway Patrol	LAN Admin	Central EDP	operator/LA	0
Insurance	Central EDP	Central DP	planned	0
Mental Health	Div Coord.	Central DP	none	20-25
Office of Administration	Lead individual	cooperative	none	2
Public Safety	Div EUC	Central	none	3-6
Revenue	Central DP	End user	EUC	5
Senate	Div	Central DP	CNE	6
Social Services	Central	Central	5 IBM	50 beg, 5 int
MO Lottery			Novell	5-10 beg 2-4 int 1-2 cert.
Totals	0	0	1	0
Missouri Western State College	dept	Central(WAN)	Novell	some
Missouri Southern State College	central	central		6-10
Northwest Missouri State University	central	central	BS/MS	1 certified

**D. Data Processing Managers Contact List**

**DP Manager**

**Supervisor**

*Missouri Senate*

Mr. Don Byrd  
Missouri Senate  
State Capitol Building  
Room 118-B  
Jefferson City, MO 65101  
314/751-2406 FAX 314/751-2230

*House of Representatives*

Mr. George W. Hagedorn  
House of Representatives  
Computer Systems  
State Capitol, Room B-33-A  
Jefferson City, MO 65101  
314/751-2357 FAX 314/751-0940  
E-mail: GHAGEDOR MHRHOST

Mr. Douglas W. Burnett  
Chief Clerk  
House of Representatives  
State Capitol  
Jefferson City, MO 65101  
314/751-3829

*Governor's Office*

Ms. Pam Brauner  
Governor's Office  
State Capitol Building  
Jefferson City, MO 65101  
314/751-3222 FAX 314/751-2128  
E-mail: BRAUNP GOVHOST

Mr. Marilyn Parrish  
Director of Admin. Services  
Governor's Office  
State Capitol Building  
Jefferson City, MO 65101  
314/751-3222

*Office of the Secretary of State*

Office of the Secretary of State  
600 West Main  
Jefferson City, MO 65109  
314/751-4780 FAX 314/751-5832  
E-mail:

Mr. James Kolb  
Executive Deputy  
Secretary of State  
Office of the Secretary of  
State  
Jefferson City, MO 65101  
314/751-2418

*Office of the State Auditor*

Mr. Max Joyce  
Office of the State Auditor  
Truman Building, Room 880  
Jefferson City, MO 65101  
314/751-4213 FAX 314-751-7984  
E-mail: JOYCE AUDITOR

Ms. Carol Finley Hurt  
Director of Administration  
Office of the State Auditor  
Truman Building, Room 880  
Jefferson City, MO 65101  
314/751-4213

*Office of the State Treasurer*

Mr. Randall Z. Wright  
Chief of Information Systems  
Office of the State Treasurer  
Truman Building, 7th Floor  
Jefferson City, MO 65101  
314/751-8522 FAX 314/751-7882  
E-mail: FT0001 SDCHOST

Mr. Gary Collins  
Assistant Treasurer  
Office of State Treasurer  
Truman Building, 7th Floor  
Jefferson City, MO 65101  
314/751-4974

*Office of the Attorney General*

Mr. Sean Curry, Systems Manager  
Office of the Attorney General  
Supreme Court Building  
Jefferson City, MO 65101  
314/751-9187 FAX 314/751-0774  
E-mail: CURRYS AGENSC

Mr. Hank Paniethiere  
Director of Administration  
Office of the Attorney General  
Supreme Court Building  
Jefferson City, MO 65101  
314/751-3321

*Office of Administration*

Mr. James A. Schutt, Director  
Division of Data Processing and  
Telecommunications  
Truman Building, Room 280  
Jefferson City, MO 65101  
314/751-1509 FAX 314/751-3299  
E-mail: SCHUTJ OAHOST

Mr. Richard A. Hanson  
Commissioner  
Capitol Building, Room 125  
Jefferson City, MO 65101  
314/751-3311  
E-mail: HANSOD OAHOST



*Office of Administration (Continued)*

Mr. Roger Bisges, Assistant Director  
Division of Data Processing and  
Telecommunications  
Finance and Administration  
Truman Building, Room 280  
Jefferson City, MO 65101  
314/751-3129 FAX 314/751-3299  
E-mail: BISGER OAHOST

Mr. Don Forck, Assistant Director  
Division of Data Processing and  
Telecommunications  
Planning and Coordination  
Truman Building, Room 280  
Jefferson City, MO 65101  
314/751-1519 FAX 314/751-3299  
E-mail: FORCKD OAHOST

Mr. Dan Steidley, Assistant Director  
Division of Data Processing and  
Telecommunications  
State Data Center  
Truman Building, Room 280  
Jefferson City, MO 65101  
314/751-1516 FAX 314/751-3299  
E-mail: STEIDD OAHOST

Mr. Norman Gillmore, Assistant Director  
Division of Data Processing and  
Telecommunications  
Systems and Programming  
Truman Building, Room 280  
Jefferson City, MO 65101  
314/751-1505 FAX 314/751-3299  
E-mail: GILLMN OAHOST

*Office of Administration (Continued)*

Ms. Gail Wekenborg, Assistant Director  
Division of Data Processing and  
Telecommunications  
Telecommunications  
Truman Building, Room 280  
Jefferson City, MO 65101  
314/751-1559 FAX 314/751-3299  
E-mail: WEKENG OAHOST

*Department of Agriculture*

Mr. Larry Hasenbeck  
Department of Agriculture  
Division of Data Processing  
1616 Missouri Boulevard  
Jefferson City, MO 65109  
314/751-3071 FAX 314/751-1784  
E-mail: HASENL MDAHOST

Mrs. Carol Heminghaus  
Director of Admin. Services  
Department of Agriculture  
1616 Missouri Boulevard  
Jefferson City, MO 65101  
314/751-3393  
E-mail: HEMINC MDAHOST

*Department of Conservation*

Mr. Lee West, Assistant Div. Chief  
Department of Conservation  
Division of Fiscal Services  
2901 West Truman Boulevard  
Jefferson City, MO 65109  
314/751-4115 FAX 314/751-4864  
E-mail: WESTL MDCHOST

Mr. Aaron Chapman, Div. Chief  
Department of Conservation  
Division of Fiscal Services  
2901 West Truman Boulevard  
Jefferson City, MO 65109  
314/751-4115  
E-mail: CHAPMA MDCHOST

*Department of Corrections*

Mr. Don Ingli  
Director of Information Systems  
Department of Corrections  
2729 Plaza Drive  
Jefferson City, MO 65109  
314/526-6451 FAX 314/751-4099  
E-mail: COISU DOCCORDC

Mr. Stanley Brown  
Deputy Director  
Department of Corrections  
2729 Plaza Drive  
Jefferson City, MO 65109  
314/526-6502  
MAY.T DOCCORDC

*Department of Economic Development*

Mr. Mike Hearst  
Director of MIS  
Department of Economic  
Development  
Truman Building, Room 720-A  
Jefferson City, MO 65101  
314/751-4387 FAX 314/751-7258  
E-mail: HEARS.M ECODEV

Mr. Michael Hartmann  
Director of Administration  
Department of Economic  
Development  
Truman Building, Room 680  
Jefferson City, MO 65101  
314/751-4957  
E-mail: HARTM.M ECODEV

*Department of Elementary and Secondary Education*

Mr. Chris Wilkerson  
Director of Information Systems  
Department of Elementary  
and Secondary Education  
205 Jefferson Street  
Jefferson City, MO 65101  
314/751-2645 FAX 314/751-7148  
E-mail: EDESE14 SDCHOST

Mr. David VanderFeltz  
Coordinator of Internal  
Operations  
Department of Elementary  
and Secondary Education  
205 Jefferson Street  
Jefferson City, MO 65101  
314/751-3501

*Department of Health*

Mr. Rex Peterson  
Chief of Office Information Systems  
Department of Health  
1738 East Elm Street  
Jefferson City, MO 65101  
314/751-6296 FAX 314/751-6010  
E-mail: PETEPOU DSSHOST

Mr. Charlie Stokes  
Deputy Director  
Department of Health  
1738 East Elm Street  
Jefferson City, MO 65101  
314/751-6002  
E-mail: STOKPSM DSSHOST

*Department of Higher Education*

Ms. Mary Willingham  
Manager of Computer Services  
Coordinating Board for  
Higher Education  
Policy Analysis and Data Services  
3515 Amazonas Drive  
Jefferson City, MO 65109  
314/751-2361 FAX 314/751-6635  
E-mail: MARYDP CBHE400

Dr. John Wittstruck  
Associate Commissioner for  
Policy Analysis and Data  
Services  
Coordinating Board for  
Higher Education  
3515 Amazonas Drive  
Jefferson City, MO 65109  
314/751-2361

*Department of Highway & Transportation*

Mr. Lew Davison, Director  
Highway and Transportation  
Department  
Information Systems Division  
Highway Building  
Jefferson City, MO 65101  
314/526-2949 FAX 314/751-6555  
E-mail: DAVISL1 HTDHQVMA

Mr. B.R. McCray, Assistant  
to the Chief Engineer  
Highway and Transportation  
Department  
Highway Building  
Jefferson City, MO 65101  
314/751-3723  
E-mail: MCCRAR HTDHQVMA

*Department of Insurance*

Mr. Jim Latteman  
Manager of MIS  
Department of Insurance  
Truman Bldg., Room 830  
Jefferson City, MO 65101  
314/751-1952 FAX 314/526-3416  
E-mail: IN001 SDCHOST

Mr. Larry Call, Director  
Department of Insurance  
Resources & Administration  
Truman Bldg., Room 630  
Jefferson City, MO 65101  
314/751-2562

*Department of Labor and Industrial Relations*

Mr. Jim Grazier, Director  
Department of Labor and  
Industrial Relations  
Division of Employment Security  
Data Processing  
421 East Dunklin Street  
Jefferson City, MO 65101  
314/751-3215 FAX 314/751-7973  
E-mail: ES1503 DOLHOST

Mr. Don Clark  
Asst. Director  
Department of Labor and  
Industrial Relations  
Division of Employment Security  
421 East Dunklin Street  
Jefferson City, MO 65101  
314/751-3215

Mr. Gilbert Bisges  
Chief of Telecommunications  
Department of Labor and  
Industrial Relations  
Division of Employment Security  
421 East Dunklin Street  
Jefferson City, MO 65101  
314/751-3215 FAX 314/751-7973



*Department of Labor and Industrial Relations (Continued)*

Mr. Stuart Huddleston  
Information Systems Manager  
Department of Labor and  
Industrial Relations  
Division of Workers' Compensation  
3315 West Truman Boulevard  
Jefferson City, MO 65109  
314/526-3585 FAX 314/751-2012

*Department of Mental Health*

Mr. Mike Benzen, Deputy Director	Dr. Keith Schafer, Director
Department of Mental Health	Department of Mental Health
Office of Information Systems	1706 East Elm Street
1706 East Elm Street	Jefferson City, MO 65101
Jefferson City, MO 65101	314/751-3070
314/751-9121 FAX 314/751-8224	E-mail: SCHAFK DMHCO
E-mail: BENZEM DMHCO	

Mr. Frank Schonhardt, Manager  
Department of Mental Health  
Systems and Programming  
1706 East Elm Street  
Jefferson City, MO 65101  
314/751-9121 FAX 314/751-8224  
E-mail: SCHONF DMHCO

*Department of Natural Resources*

Mr. Ron Pinkham  
Director  
Department of Natural Resources  
Division of Management Information  
Services  
Jefferson Building, 11th Floor  
Jefferson City, MO 65101  
314/751-4557 FAX 314/751-7749  
E-mail: PINKHAM DNRHOST

Ms. LaVerne Brondel  
Deputy Director  
Department of Natural Resources  
Division of Management Info.  
Services  
Jefferson Building, 11th Floor  
Jefferson City, MO 65101  
314/751-2963  
E-mail: NRBRONDL SDCHOST

*Department of Public Safety*

Mr. Mikel Lynch  
Assistant Director  
Department of Public Safety  
Truman Building, Room 870  
Jefferson City, MO 65101 314/751-4905  
314/751-5125 FAX 314/751-5399  
E-mail: MIKE DPS

Mr. Terry Knowles, Director  
Department of Public Safety  
Truman Building, Room 870  
Jefferson City, MO 65101

Mr. Gerry Wethington, Director  
Missouri State Highway Patrol  
Information Systems Division  
1510 East Elm Street  
Jefferson City, MO 65101  
314/751-4026 FAX 314/751-9382  
E-mail: WETHIG DPSHPGHQ

LTC B.D. Smith  
Missouri State Highway Patrol  
Support Services Bureau  
1510 East Elm Street  
Jefferson City, MO 65101  
314/751-3313

*Office of the Adjutant General (Missouri National Guard)*

LTC Robert Moran  
Information Management Officer  
Missouri National Guard  
1717 Industrial Drive  
Jefferson City, MO 65109  
314/526-9873

LTC Mike Jameson  
Director of Info. Management  
Missouri National Guard  
1717 Industrial Drive  
Jefferson City, MO 65109  
314/526-9800

*Department of Revenue*

Mr. Rick Moore, Director  
Department of Revenue  
Division of Information Systems  
Truman Building, Room 270  
Jefferson City, MO 65101  
314/751-3100 FAX 314/751-6702  
E-mail: DU1136 DORHOST

Ms. Janette Lohman  
Director  
Department of Revenue  
Truman Building, 6th Floor  
Jefferson City, MO 65101  
314/751-4450  
E-mail: DU1000 DORHOST

Mr. Ronald Murphy  
Lottery Commission  
Management Information Systems  
1823 Southridge Drive  
Jefferson City, MO 65109  
314/751-4050 FAX 314/751-5188

*Department of Social Services*

Ms. Joyce Backes, Director  
Department of Social Services  
Division of Data Processing  
EDP Building, 313 West McCarty  
Jefferson City, MO 65101  
314/751-4435 FAX 314/751-0412  
E-mail: BACKAAD DSSHOST

Ms. Melba Price  
Associate Director  
Department of Social Services  
Broadway Building  
Jefferson City, MO 65101  
314/751-4815  
E-mail: PRICABI DSSHOST

*MOSERS*

Mr. Randy Rippee, Manager  
MOSERS  
Division of Data Processing  
906 Leslie Boulevard  
Jefferson City, MO 65101  
314/751-2342 FAX 314/751-7182  
E-mail: RANDYR MOSERS

Ms. Rosemary Eppenauer  
Assistant Executive Director  
MOSERS  
906 Leslie Boulevard  
Jefferson City, MO 65101  
314/751-2342  
E-mail: ROSIE MOSERS

*Office of the State Courts Administrator*

Ms. Carolyn Steidley, Director  
Office of State Courts Administrator  
Division of Data Processing  
1105R Southwest Boulevard  
Jefferson City, MO 65109  
314/751-4377 FAX 314/751-5540

Ms. Jane A. Hess  
Office of State Courts Admin.  
1105R Southwest Boulevard  
Jefferson City, MO 65109  
314/751-4377

## *COLLEGES & UNIVERSITIES*

### *Central Missouri State University*

Dr. Mel Franz, Interim Director  
Information Services  
Central Missouri State University  
216 Humphreys Building  
Warrensburg, MO 64093-5154  
816/543-4279 FAX 816/543-4959  
MOREnet: @cmsuvmc.cmsu.edu

Dr. Duane Sterling  
Director of Planning  
Central MO State University  
Gov't & Information Services  
225 Humphreys Building  
Warrensburg, MO 64093-5154  
816/543-4580

### *Harris-Stowe State College*

Dr. James W. Gorham, Jr.  
Vice-President  
Harris-Stowe State College  
Institutional Support & Enrollment  
3026 Laclede Avenue  
St. Louis, MO 63103-2199  
314/340-3544 FAX 314/340-3550

Mr. Tom Blaine  
Vice-President  
Harris-Stowe State College  
Business and Financial Affairs  
3026 Laclede Avenue  
St. Louis, MO 63103-2199

### *Lincoln University*

Mr. Ron Langley, Director  
Lincoln University  
Lincoln University  
Computing Services and  
Telecommunications  
820 Chestnut Street  
Jefferson City, MO 65101  
314/681-5400 (5402) FAX 314/681-5566  
MOREnet: langleyr@lua6.lu.edu

Dr. Cornelius Wooten  
Vice-President of Business  
and Finance  
Lincoln University  
820 Chestnut Street  
Jefferson City, MO 65101  
314/681-5079

### *Missouri Southern State College*

Mr. Steve Earney  
Assistant Vice-President  
Missouri Southern State College  
Computer and Information Services 3950 East Newman Road  
3950 East Newman Road  
Joplin, MO 64801-1595  
417/625-9350 FAX 417/625-9734  
MOREnet: earney?s%cc01@cc01.mssc.edu

Dr. John Tiede  
Senior Vice-President  
Missouri Southern State College  
3950 East Newman Road  
Joplin, MO 64801-1595  
417/625-9300

*Missouri Western State College*

Mr. Mark Mabe, Director  
Missouri Western State College  
Computer Center  
4525 Downs Drive  
St. Joseph, MO 64507-2294  
816/271-4261 FAX 816/271-4574  
MOREnet: mark\_mabe%mg%mwsc@monet.mwsc.edu

Mr. Robert Showers, Director  
Missouri Western State College  
Business & Accounting Services  
4525 Downs Drive  
St. Joseph, MO 64507-2294  
816/271-4227

*Northeast Missouri State University*

Mr. Dave Rector, Director  
Northeast Missouri State University  
Computer Services and  
Institutional Research  
MC107  
Kirksville, MO 63501  
816/785-4163 FAX 816/785-4181  
MOREnet: daverec@nemomus.bitnet

Dr. Russell Warren  
President  
Northeast Missouri State Univ.  
MC202  
Kirksville, MO 63501  
816/785-4100

*Northwest Missouri State University*

Dr. Jon Rickman, Director  
Northwest Missouri State University  
Computer Services/Data Processing  
Maryville, MO 64468-6001  
816/562-1134 FAX 816/562-1900  
MOREnet: 0002057@northwest

Dr. Dean Hubbard, President  
Northwest Missouri State Univ.  
Maryville, MO 64468-6001  
816/562-1110

*Southeast Missouri State University*

Mr. Don A. Krueger, Director  
Southeast Missouri State University  
Computer Center  
One University Plaza  
Cape Girardeau, MO 63701  
314/651-2217 FAX 314/651-2200  
MOREnet: a111ccr@semovm.semo.edu

Dr. Ken Dobbins  
Vice-President  
Southeast Missouri State Univ.  
Finance and Administration  
Academic Hall  
Cape Girardeau, MO 63701  
314/651-2210

*Southwest Missouri State University*

Dr. Jeff Morrissey, Acting Director  
Southwest Missouri State University  
Computer Services  
901 South National Avenue  
Springfield, MO 65804  
417/836-4556  
FAX 417/836-6882  
MOREnet:

Dr. Bruno Schmidt  
Vice-President  
Southwest Missouri State Univ.  
Academic Affairs  
901 South National Avenue  
Springfield, MO 65804  
417/836-5233

*University of Missouri*

Mr. Linsey Williams, Director  
University of Missouri  
Computing and Information Technology  
401 Clark Hall  
Columbia, MO 65211  
314/882-7001 FAX 314/882-1370

Dr. James McGill  
Vice-President  
University of Missouri  
Administrative Affairs  
215 University Hall  
Columbia, MO 65211  
314/882-3611

Mr. Bill Mitchell  
Director  
University of Missouri-Columbia  
Computing Services  
200 Heinkel Building  
Columbia, MO 65211  
314/882-2000 FAX 314/884-5240  
MOREnet: bill@more.net

# **E. FY 95 Agency New IT Decision Items**

	DP Priority	Dept. Priority	Cost	Description
Agriculture	II	32 of 46	46,000	AS/400 Upgrade
Agriculture	III	36 of 46	31,000	State Fair AS/400
Conservation	III	9 of 10	900,000	Permit database and point of sale
Corrections	II	9 of 24	286,000	AS/400 upgrade and 2 Comp. Oper.
Economic Develop.	III	43 of 44	68,000	Laptops, Healing Arts
Economic Develop.	III	32 of 44	81,000	Network in Finance
Elementary and Sec.	I	17 of 57	5,000,000	Internet connection for schools
Health	II	12 of 28	296,000	Network & System Development
Labor and Ind. Relation	II	20 of 43	20,000	PCs, Director's Office
Labor and Ind. Relation	II	24 of 43	10,000	Case tracking sys., Industrial Com.
Labor and Ind. Relation	IV	42 of 43	3,700	Voice mail & lines, Labor Standard
Labor and Ind. Relation	II	22 of 43	500,000	Imaging, Worker's Comp.
Labor and Ind. Relation	III	38 of 43	151,000	Laptops & printers, Worker's Comp.
Labor and Ind. Relation	III	25 of 43	35,000	Imaging for Crime Victims
Labor and Ind. Relation	II	32 of 43	32,000	Programmer Analyst I
Labor and Ind. Relation	II	16 of 43	1,600,000	DASD and Tape, Employment Sec.
Labor and Ind. Relation	II	23 of 43	14,500	PCs, Com. on Human Rights
Office of Administration	I	5 of 40	37,888	2 FTE for CSE, Accounting
Office of Administration	III	24 of 40	32,000	DP Consultant, Accounting
Office of Administration	II	7 of 40	15,000	Fed. Grants Tracking Sys., B&P
Office of Administration	II	25 of 40	250,000	New Budget System, B&P
Office of Administration	II	29 of 40	15,000	PCs, B&P
Office of Administration	II	18 of 40	137,500	CASE costs, DP&T
Office of Administration	II	8 of 40	96,000	3 FTE for CADD, D&C
Office of Administration	III	27 of 40	75,000	CADD consultant, D&C
Office of Administration	II	16 of 40	464,000	Imaging & AS/400, Personnel
Office of Administration	I	10 of 40	118,000	4 FTE for Worker's Comp., G.S.
Office of Administration	IV	28 of 40	96,000	Digital Copier, G.S.
Revenue	III		TBD	Public Information Access
Social Services	I	115 of 258	2,000,000	MACSS (cost to continue)
Social Services	II	1 of 258	7,000,000	FAMIS (core budget)
Social Services	I	1 of 258	7,500,000	MACSS (core budget)
Supreme Court	II	6 of 9	225,000	PC's & Network

**F. Chapter 37, Section 37.005, RSMo.**

Revised Statutes of the State of Missouri 1988

9. The Commissioner of Administration is hereby authorized to coordinate and control the acquisition and use of Electronic Data Processing (EDP) and Automatic Data Processing (ADP) in the executive branch of state government. For this purpose, the Office of Administration will have authority to:
- (1) Develop and implement a long-range computer facilities plan for the use of EDP and ADP in Missouri state government. Such plan may cover, but is not limited to, operational standards, standards for the establishment, function, and management of service centers, coordination of the data processing education, and planning standards for application development and implementation;
  - (2) Approve all additions and deletions of EDP and ADP hardware, software, support services, and service centers;
  - (3) Establish standards for the development of annual data processing application plans for each of the service centers. These standards shall include review of post-implementation audits. These annual plans shall be on file in the Office of Administration and shall be the basis for equipment approval requests;
  - (4) Review of all state EDP and ADP applications to assure conformance with the state information systems plan, and the information systems plans of state agencies and service centers;
  - (5) Establish procurement procedures for EDP and ADP hardware, software, and support service;
  - (6) Establish a charging system to be used by all service centers when performing work for any agency;
  - (7) Establish procedures for the receipt of service center charges and payments for operation of the service centers. The Commissioner shall maintain a complete inventory of all state-owned or -leased EDP and ADP equipment, and annually submit a report to the General Assembly which shall include starting and ending EDP and ADP costs for the fiscal year previously ended, and the reasons for major increases or variances between starting and ending costs. The Commissioner shall also adopt, after public hearing, rules and regulations designed to protect the rights of privacy of the citizens of this state and the confidentiality of information contained in computer tapes or other storage devices to the maximum extent possible consistent with the efficient operation of the Office of Administration and contracting state agencies.



## **G. Issue Paper on Development of IT Technical Standards**

Opportunities to develop technology standards for use throughout all state agencies should be evaluated.

### **Background:**

Missouri government has not implemented standards in many IT areas. For example, the Division of Budget and Planning (state's central budget office for the executive branch) cannot communicate electronic spreadsheets to or from all agencies as it develops the state's budget. This example and others represent serious problems in managing and leading the state forward and are directly or indirectly the result from the lack of IT standards being implemented in the state.

The concept of technology standards is not new to enterprise-wide IT. In fact, in the early days of automation, a single mainframe computing environment provided many defacto IT standards. As more IT vendors entered the hardware and software market IT standards become more varied and oftentimes were not compatible. Previous examples depict the problems resulting from conflicting standards developed for LANs, protocols, addressing conventions, naming conventions and data representation. The lack of networking standards will make it very difficult for the future integration of state agency LANs into one integrated network. In the present and foreseeable future environments, the state will be responsible for selecting and applying IT technical standards which will be used by agencies.

Progress toward adoption of new technology is often done without regard to standardization among state agencies. Statewide standards development is currently defeated when individual agencies procure and implement new technologies without regard to a consensus among other agencies. However, excessive standards limitations in software and hardware may limit important innovations. The state needs to be able to move forward easily to adopt new technologies even when rigorous standards have been implemented. Often, a product defines a standard by its popular acceptance in the automation community.

Many public and private entities have addressed the need to effectively support data interchange by adhering to EDI standards. The state has successfully implemented EDI in two application areas that communicate with federal automated systems. The success and efficiency of these applications provide powerful motivation to implement EDI in additional applications. Standards in this area will be essential.

#### Rationale:

The implementation of IT standards has the potential to unite agencies in ways which dramatically improve service to the citizens of Missouri. The opportunity for the state to have wide area networks that effectively support current and future applications is greatly enhanced through the development of standards for local area networking and wide area networking.

The process of an organization developing or adopting certain information transfer and processing standards has been shown to reduce redundancy of data maintenance among subdivisions within organizations. The need of public agencies to interchange data, plus the expanding interconnectivity among, offers the significant opportunities to harvest the benefits of standardization. All agencies within state government could provide better service to citizens with this type of restructuring along standardized lines.

In addition to the potential savings realized in support and training costs, improved standards will provide savings in how state government does business. Another area of potential savings will be in cost avoidance in an environment where new interagency systems can be brought into production more rapidly.

#### Findings:

The most important and immediate application areas for technology standards include:

- a) local and wide area networking;
- b) EDI applications, E-mail, image transfers, and multi-media objects;
- c) standard for networking protocols and routing of many-to-one data transfers; and
- d) local area networking addresses, naming conventions, messaging conventions and data representation.

Within the area of EDI standardization, many potential applications must be considered. The following are possible targets for EDI in the State:

Job data banks	Purchasing bids
Legislation systems	Vendor payments
State tax returns	Professional certifications
Sales tax returns	Education transcripts

Health care claims  
Medicaid claims  
Telephone billing

Student loan system  
Federal systems

Other potential areas to be considered for definition of standards are:

- word processing, spreadsheet, database, and communication software,
- image, storage, retrieval and transmission software,
- publication, and presentation software,
- compression and encryption software,
- geographical information systems (GIS), statistics software,
- object-oriented languages, personal computer languages, fourth generation languages,
- file and document management systems,
- printers and scanners,
- desktop and server maintenance,
- disaster recovery strategies, including backup software.

## **H. Issue Paper on Development of IT New Technology**

New technologies to solve business problems in state government should be implemented.

### **Background:**

Historically, the state has been a follower in adopting new information technologies as the investments generally required are difficult to acquire through the state's budget process. Even with this barrier, the Missouri government has been an early adopter of new IT in several areas. The Division of Employment Security was an early adopter of an imaging technology. Further, a number of agencies have started or are planning to install GISs for various applications.

### **Rationale:**

Advances in information technology are moving at an ever-increasing rate and the state needs to have a formal process and approach to capitalize on them. Technologies such as multimedia, virtual reality, intelligent agents, object oriented programming, mobile computing, relational databases, collaborative computing, etc., may have a substantial positive impact on the state.

The state needs to implement in its IT planning process an approach to evaluate and prioritize new and emerging technologies that will be pervasive in their use across the state. This process would also allow the state to deal with new technology that may have limited application to a few departments or units.

### **Findings:**

The Technology Advisory Board should provide an effective mechanism for the investigation of new technologies that may benefit agencies in reducing costs, avoiding future costs, improving productivity or customer service, or enhancing the infrastructure. The statewide strategic plan should identify which technologies of inter-agency interest will be addressed. Findings may be used to set statewide standards through the strategic plan, and provide input and direction to state agencies.

Centralized funding should be appropriated for the organization from savings realized in other areas. Personnel with broad experience in the data processing field should staff the new virtual organization in a matrix organization approach. Employees from user agencies should be rotated to the group as new technologies are addressed. Vendors should be requested to donate

appropriate equipment and participate in equipment testing. Vendor participation and support could be a requirement in bids.

An annual IT conference should be held to make agencies aware of technology directions. This training will help management make informed decisions. State agencies that implement new technologies should also demonstrate those at the conference and educate other state agencies. All agencies should benefit from the experience of a few.

This recommendation should be developed further by the IT Technology Advisory Board.

**I. State Agency Data Center Director Responses to Recommendations**

(To be included with Final Report)

**J. Proposed Request For Bid (RFB) for the Position of Director of the Office of Information Technology (OIT)**

The following are basic specifications which the task force recommends be a part of the RFB to bid this position.

**1. Project Supervision:**

The director and related activities to be supervised by the Governor's Chief of Staff.

**2. Length of Appointment:**

One one-year term with two one-year extensions, subject to appropriations.

**3. Scope of Work:**

- a) Coordinate the creation and revision of a State IT Plan.
- b) Organize the development and administer the implementation of an IT strategic training program for all agency upper and mid-management professionals and support staff.
- c) Convene the IT Planning Board and IT Advisory Board.
- d) Through the review of existing and emerging technology standards and issues, direct the statewide adoption of policy, procedures and standards, considering an open systems architecture. (See Appendix J and K for detailed narrative.)
- e) Promote and sponsor new technology research projects via a "technology laboratory" which, through agency participation, would conduct testing of various hardware and software products, examine different operating systems, and examine the latest in open systems technology. Also sponsored would be a "technology information center" which would contain technical information regarding IT and its implementation, and a periodic technology fair which would highlight new promising technologies, innovative IT projects of state government and private business, and so forth (see Table 3).
- f) Work with the two boards associated with the Office to develop a system performance measures, including common metrics, for evaluating the effectiveness of all major IT installations. These

measures should be used to determine IT utility rightsizing.

- g) Surveying the state of IT performance throughout state government considering the state's IT strategic plan, prepare and submit to the Governor an annual evaluation of IT performance with recommendations for change.
- h) Facilitate planning and serve as a liaison to state and national groups.
- i) Regulate IT procurement to insure compliance with existing state and agency IT plans.

4. Compensation:

The director shall be compensated commensurate with professionals in similar positions in government agencies in other states.

5. Location of Work:

The director shall be officed in Jefferson City and report daily, unless on official business requires outstate travel.

6. Scope of Advertisement, Opening and Closing Timeframes:

A nationwide advertisement should be conducted, including all relevant trade media and professional organizations. Current state employees should not be exempted for applying. Opening of advertisements should occur no later than mid-August, 1994 and close 30 days hence. No applications shall be accepted following the official closing date. Interviews should be conducted immediately upon closing.

7. Bid Evaluation Criteria:

- a. Qualifications                      35 percent  
Minimum qualifications include significant professional education in the area of IT, including evidence of participation in ongoing professional education.
- b. Experience                              35 percent  
Minimum experience in recent significant professional leadership responsibilities in the area of IT administration, including planning, budgeting, personnel supervision, legislative involvement, and evaluation. A successful applicant must document experience and



performance in each of these areas.

- c. Cost 30 percent  
Cost may not significantly exceed the median of the range of professional directors of IT or CIOs in other states or in the private business sector.

8. Method of Conducting Interviews:

The OA, Division of Personnel should oversee the interview process and do so in a timely manner. Interests to be included among interviewees of applicants should be COMAP Automation Task Force, Governor's Office, and directors of agencies from all branches of state government.

# **K. OA Data Center Customers and Payments for Services**

FY 94 Cost Estimates by Customer  
State Data Center

Customer	Impact Lines Printed	Laser Feet Printed	CPU Service Units	TP Transac- tions	Device Hookup	Tape Process- ing
Senate	0	0	16	12	81	0
House	0	0	56	31	645	0
Legislative Research	0	0	0	0	81	0
State Court Administrator	0	2	430	142	645	14
Governor	0	0	19	11	161	0
Secretary of State	3	8,482	91,555	25,022	8,266	3,626
Auditor	2	1,613	7,981	274	396	1,201
Treasurer	0	0	5	1	81	0
Attorney General	0	0	283	70	806	0
OA Systems & Programming	96	29,439	335,993	8,555	5,255	3,878
OA Commissioner's Office	0	0	4	4	396	0
OA Accounting	226	6,796	30,688	8,128	7,930	1,348
OA Budget & Planning	0	1	508	167	484	0
OA SAM & PARS Production	3,139	194,912	189,887	0	0	42,476
OA Production System	428	18,820	19,979	3,761	7,930	952
OA Design & Construction	22	13,517	96,569	4,555	11,901	1,554
OA Personnel	11	2,194	18,866	4,442	4,247	742
OA Purchasing & Materials Mgt.	1,607	5,821	47,632	6,849	5,645	2,958
OA General Services	335	1,340	5,576	3,355	2,392	228
OA Admin. Hearing Commission	0	5	12	10	228	0
OA DP&T/Office Automation	0	21	81	0	215	0
Agriculture	0	1	697	181	484	0
Conservation	0	0	2,045	46	1,129	238
Economic Development	0	342	168,620	9,964	55,843	4,200

Customer	Impact Lines Printed	Laser Feet Printed	CPU Service Units	TP Transac- tions	Device Hookup	Tape Process- ing
Insurance	2	3,124	115,515	12,958	10,839	2,370
Elementary & Secondary Education	0	1,005	1,029	457	3,568	4
Higher Education	0	4	63	89	659	4
Health	0	2	3,489	767	3,306	7
Highway & Transportation	0	4	7,022	216	1,371	46
Labor & Industrial Relations	0	5	4,527	2,410	19,206	4
Mental Health	0	8	56,562	2,005	31,013	13,570
Natural Resources	1,676	3,531	151,104	16,264	18,924	5,782
Public Safety	0	0	53	32	1,572	0
Highway Patrol	0	258	7,327	35,561	3,770	70
KC PD Alert	0	0	3,169	15,379	81	0
STL REJIS	0	0	4,433	21,516	249	0
Revenue\ISD	47,095	348,448	2,977,384	420,615	161,441	82,702
Revenue\Motor Vehicle	0	0	0	0	0	0
Revenue\Taxation	0	0	0	0	0	0
Motor Vehicle Commission	0	5	3,096	1,263	1,613	0
Lottery Commission	0	1	334	173	726	0
State Tax Commission	3	0	1,051	20	323	0
Highway Reciprocity	273	4,579	91,370	10,731	3,898	1,085
Social Services	0	182	19,424	10,831	84,067	4
Corrections	0	0	3,773	1,732	4,596	0
Other Customers	0	1,632	3,200	1,262	1,021	0
<b>TOTAL BILLABLE COSTS</b>	<b>54,918</b>	<b>646,094</b>	<b>4,471,427</b>	<b>629,861</b>	<b>467,484</b>	<b>169,063</b>

FY 94 Cost Estimates by Customer  
State Data Center (Continued)

Customer	Tape Mounts	Tape Storage	Disk Storage	TSO Sessions	IDMS Units	DB2 Shares
Senate	0	0	0	0	1	0
House	0	0	0	0	5	0
Legislative Research	0	0	0	0	0	0
State Court Administrator	6	6	0	0	29	0
Governor	0	0	0	0	1	0
Secretary of State	2,135	2,487	31,700	1,451	51	0
Auditor	1,788	1,360	1,560	1,077	3	0
Treasurer	0	0	0	0	0	0
Attorney General	0	0	0	0	1	0
OA Systems & Programming	5,824	11,059	65,090	25,983	3,038	47,382
OA Commissioner's Office	0	0	0	0	0	0
OA Accounting	1,876	1,342	5,776	1,110	2,084	0
OA Budget & Planning	0	1	126	96	82	0
OA SAM & PARS Production	23,031	28,351	30,878	0	35	0
OA Production System	991	3,199	3,880	1,830	2,893	0
OA Design & Construction	2,078	1,858	9,569	2,867	5,566	0
OA Personnel	1,388	730	1,963	45	384	0
OA Purchasing & Materials Mgt.	1,860	1,332	8,804	28	11,162	0
OA General Services	682	900	910	95	179	0
OA Admin. Hearing Commission	0	0	281	0	3	0
OA DP&T/Office Automation	0	0	0	74	0	0
Agriculture	0	1	0	0	84	0
Conservation	44	7	0	0	12	0
Economic Development	1,590	5,203	35,774	6,945	658	0

Customer	Tape Mounts	Tape Storage	Disk Storage	TSO Sessions	IDMS Units	DB2 Shares
Insurance	2,453	2,636	38,022	4,125	155	0
Elementary & Secondary Education	8	4	15	0	123	0
Higher Education	8	44	0	0	0	0
Health	6	5	0	1	659	0
Highway & Transportation	1	4	16	522	24	23,691
Labor & Industrial Relations	5	0	0	0	256	0
Mental Health	4,328	9,936	69,630	57,923	2,192	47,382
Natural Resources	2,828	7,980	28,777	8,923	3,645	47,382
Public Safety	0	0	0	0	5	0
Highway Patrol	60	7	39	332	401	23,691
KC PD Alert	0	0	0	0	0	0
STL REJIS	0	0	0	0	0	0
Revenue\ISD	33,658	46,889	580,613	54,435	450,633	0
Revenue\Motor Vehicle	0	0	0	0	0	0
Revenue\Taxation	0	0	0	0	0	0
Motor Vehicle Commission	2	2	0	0	1,421	0
Lottery Commission	0	2	0	0	20	0
State Tax Commission	7	110	333	284	12	0
Highway Reciprocity	466	270	7,661	1,912	27	0
Social Services	8	0	102	0	1,250	0
Corrections	0	0	0	0	440	0
Other Customers	0	0	0	0	842	0
<b>TOTAL BILLABLE COSTS</b>	<b>87,131</b>	<b>125,725</b>	<b>921,519</b>	<b>170,058</b>	<b>488,376</b>	<b>189,530</b>

FY 94 Cost Estimates by Customer  
State Data Center (Continued)

Customer	Microfiche Original	Microfiche Duplicate	Office Auto Backups	IEF Shares	IMS Shares
Senate	0	310	0	0	0
House	48	1,025	0	0	0
Legislative Research	0	0	0	0	0
State Court Administrator	346	0	0	0	0
Governor	0	0	0	0	0
Secretary of State	0	0	0	0	0
Auditor	0	0	0	0	0
Treasurer	513	204	0	0	0
Attorney General	0	0	0	0	0
OA Systems & Programming	0	0	0	17,244	
OA Commissioner's Office	0	0	0	0	0
OA Accounting	18,114	8,176	0	0	0
OA Budget & Planning	48	0	00	0	0
OA SAM & PARS Production	0	0	0	0	0
OA Production System	11,909	3,363	0	0	0
OA Design & Construction	0	0	0	0	0
OA Personnel	1,675	210	0	0	0
OA Purchasing & Materials Mgt.	99	0	0	0	0
OA General Services	0	0	0	0	0
OA Admin. Hearing Commission	0	0	0	0	0
OA DP&T/Office Automation	0	0	9,300	0	0
Agriculture	0	0	0	0	0
Conservation	721	845	0	0	0
Economic Development	0	0	0	0	0

Customer	Microfiche Original	Microfiche Duplicate	Office Auto Backups	IEF Shares	IMS Shares
Insurance	0	0	0	0	0
Elementary & Secondary Education	185	29	0	0	0
Higher Education	1,114	862	0	0	0
Health	6,145	691	0	0	0
Highway & Transportation	940	134	0	17,244	0
Labor & Industrial Relations	1,920	456	0	0	0
Mental Health	1,870	1,820	0	17,244	10,872
Natural Resources	2,940	991	0	0	0
Public Safety	826	1,451	0	0	0
Highway Patrol	0	0	0	17,244	0
KC PD Alert	0	0	0	0	0
STL REJIS	0	0	0	0	0
Revenue\ISD	0	0	0	0	0
Revenue\Motor Vehicle	13,793	36,423	0	0	0
Revenue\Taxation	15,644	5,513	0	0	0
Motor Vehicle Commission	0	0	0	0	0
Lottery Commission	1,133	209	0	0	0
State Tax Commission	0	0	0	0	0
Highway Reciprocity	0	0	0	0	0
Social Services	6,284	23,887	0	0	0
Corrections	0	0	27,900	0	0
Other Customers	426	49	0	0	0
<b>TOTAL BILLABLE COSTS</b>	<b>86,693</b>	<b>86,648</b>	<b>37,200</b>	<b>68,976</b>	<b>10,872</b>

FY 94 Cost Estimates by Customer  
State Data Center (Continued)

Customer	Keyentry Strokes	Unadjusted Billing	CPU Priority Adjustment	Net FY 94 Billing
Senate	0	420	0	420
House	0	1,810	0	1,810
Legislative Research	0	81	0	81
State Court Administrator	0	1,620	0	1,620
Governor	0	192	0	192
Secretary of State	0	174,778	(3,936)	170,842
Auditor	0	17,255	0	17,255
Treasurer	0	804	0	804
Attorney General	0	1,160	0	1,160
OA Systems & Programming	51	558,887	(38,219)	520,668
OA Commissioner's Office	0	404	0	404
OA Accounting	615	94,209	(843)	93,366
OA Budget & Planning	0	1,513	0	1,513
OA SAM & PARS Production	163,649	676,358	(25,309)	651,049
OA Production System	111,880	191,815	(2,663)	189,152
OA Design & Construction	2,473	152,529	(3,063)	149,466
OA Personnel	0	36,897	(1,897)	35,000
OA Purchasing & Materials Mgt.	3,523	97,320	(6,062)	91,258
OA General Services	1,026	17,018	(188)	16,830
OA Admin. Hearing Commission	0	539	0	539
OA DP&T/Office Automation	0	9,691	0	9,691
Agriculture	0	1,448	0	1,448
Conservation	0	5,087	0	5,087
Economic Development	0	289,139	(17,112)	272,027



Customer	Keyentry Strokes	Unadjusted Billing	CPU Priority Adjustment	Net FY 94 Billing
Insurance	0	192,199	(8,605)	183,594
Elementary & Secondary Education	0	6,427	0	6,427
Higher Education	0	2,847	0	2,847
Health	0	15,078	0	15,078
Highway & Transportation	0	51,235	0	51,235
Labor & Industrial Relations	0	28,789	0	28,789
Mental Health	0	326,355	(1,537)	324,818
Natural Resources	0	300,747	0	300,747
Public Safety	0	3,939	0	3,939
Highway Patrol	0	88,760	0	88,760
KC PD Alert	0	18,629	0	18,629
STL REJIS	0	26,198	0	26,198
Revenue\ISD	0	5,203,913	(107,869)	5,096,044
Revenue\Motor Vehicle	0	50,216	0	50,216
Revenue\Taxation	0	21,157	0	21,157
Motor Vehicle Commission	0	7,402	0	7,402
Lottery Commission	0	2,598	0	2,598
State Tax Commission	0	2,143	0	2,143
Highway Reciprocity	0	122,272	0	122,272
Social Services	0	146,039	0	146,039
Corrections	0	38,441	0	38,441
Other Customers	0	8,432	0	8,432
<b>TOTAL BILLABLE COSTS</b>	<b>283,217</b>	<b>8,994,790</b>	<b>(217,303)</b>	<b>8,777,487</b>

**L. Chief Information Officer Comparisons**

**Table 9. CIO Organizational Relationships**

States With CIO	Chief Information Officer (CIO) Title, Division	CIO reports to:	CIO relationship to commission
<b>Group 1</b> Delaware Idaho Maine Montana Nevada New Mexico North Dakota South Dakota	Executive Director, Office of Information Systems Statewide Data Processing Coordinator, Information Resource Management Director, Bureau of Information Services Administrator, Information Services Division Director, Department of Data Processing Director, Information Systems Division Director, Information Systems Division Director, Information Systems	Budget Director, Office of the Budget, Executive Department Director, Department of Administration Commissioner, Administrative and Financial Services Director, Department of Administration <del>Governor</del> Cabinet Secretary, General Services Department, Office of the Secretary Director, Office of Management and Budget Bureau of Administration, Executive Management	Commission advises CIO CIO advises IRM commission  Commission advises CIO Commission advises CIO Commission advises CIO Commission advises CIO No commission No commission
<b>Group 2</b> Arizona Arkansas Colorado Kansas Kentucky Mississippi Oregon South Carolina	Assistant Director, Data Management Division Director, Department of Computer Services Staff Director, Commission on Information Management Director, Division of Information Systems & Communication Commissioner, Department of Information Systems Executive Director, Central Data Processing Authority Administrator, Information Systems Division Deputy Director, Office of Information Technology Policy & Management	Director, Department of Administration <del>Governor</del> Executive Director, Department of Administration Secretary, Department of Administration Secretary, Finance and Administration Cabinet Central Data Processing Authority Board Director, Executive Department Agency Director, Budget & Control Board, Research and Statistical Services	Commission advises CIO No commission Reports to someone else, but accountable to commission No commission Commission advises CIO Reports and is accountable to commission Commission advises CIO No commission
<b>Group 3</b> Alabama Maryland Minnesota Tennessee Washington Wisconsin	Director, Data Systems Management Division (pending) Assistant Commissioner, Information Policy Office Chief of Information Systems Director, Department of Information Services Division Administrator	Finance Director, Department of Finance Secretary, Budget and Fiscal Planning Commissioner, Department of Administration Commissioner, Department of Finance and Administration <del>Governor</del> , Office of the Governor Secretary, Department of Administration	No commission Commission advises CIO No commission Reports to someone else, but accountable to commission Reports to someone else, but accountable to commission The CIO chairs the board which is advisory to the Secretary of Administration
<b>Group 4</b> California Florida Illinois North Carolina Ohio Pennsylvania Texas Virginia (1) (2)	Director, Office of Information Technology Executive Administrator, Information Resource Commission Director, Department of Central Management Services Deputy State Controller for IRM, Office of the State Controller Deputy Director, Division of Computer and Information System Services Special Assistant to the Governor for Computer Information Systems Executive Director, Department of Information Resources Director, Department of Information Technology Staff Director, Council on Information Management	Director, Department of Finance <del>Governor</del> and Cabinet <del>Governor</del> State Controller, Office of the State Controller Director, Department of Administrative Services  Deputy Chief-of-Staff for Operations & Administration, Governor's Office  N/A Both the director of DIT and the staff director of CIM are appointed by the Governor and report to the Secretary of Administration.	No commission Reports and is accountable to commission No commission Reports to someone else, but accountable to commission No commission  No commission  Reports and is accountable to commission For DIT director, commission advises CIO For CIM director, reports to someone else, but accountable to commission

**Table 10. Government Structures Under CIO Authority**

Chief Information Officer (CIO)

States With CIO	Sans Authority as Commission	Executive Department	Sets/Approves IRM	Legislative Branch	Sets/Approves IRM	Judicial Branch	Sets/Approves IRM	University System	Sets/Approves IRM	Community College System	Sets/Approves IRM	Public Schools	Sets/Approves IRM	County Governments	Sets/Approves IRM	Municipal Governments	Sets/Approves IRM	Public Non-profit	Sets/Approves IRM
<b>Group 1</b>																			
Delaware	no	full	pol/stan	part		part		pol/stan	full	pol/stan	full		none		none		none		
Idaho	no	full		none		none			full		none		none		none		none		
Maine	same	full		none		none			none		none		none		none		none		
Montana	no	part		part		part			none		none		part		none		none		
Nevada	no	part	stan	none		none			none		none		none		none		none		
New Mexico	no	part		part		part			none		none		one		part		part		
North Dakota	no	full		none		none			none		none		none	pol	none	pol	none		
South Dakota	no	full	pol/stan	part		part			part		none		none		none		none		
<b>Group 2</b>																			
Arizona	no	none	pol/stan	none		none		none	part	pol/stan	none	pol/stan	none		none		none		
Arkansas	no	full	pol/stan	none		none		part	part		none		none		none		none		
Colorado	same	full		full		full		part	part	pol	none		none		none		none		
Kansas	no	full	pol/sta	none		none		part	none		none		none		none		none		
Kentucky	no	full	pol/stan	none		none		none	none		none		none		part		part		
Mississippi	same	full		none		none		full	full		full		part		none		none		
Oregon	no	full		none		none		full	none		none		none		none		none		
South Carolina	no	full		none		full		full	full		full		part		none		none		
<b>Group 3</b>																			
Alabama	no	full	pol/stan	part		part		part	none	pol/stan	part	pol/stan	part		part		none		
Maryland	no	part	pol/stan	none		none		part	part	pol	part	pol	none		none		none		
Minnesota	no	full	pol/stan	none		none		part	part	stan	part	stan	none		none		none		
Tennessee	no	full	stan	part	stan	part		part	part		part		none		none		none		
Washington	same	full		none		full		full	full		full		none		none		none		
Wisconsin	same	full		none		none		full	none		none		none		none		none		
<b>Group 4</b>																			
California	no	part		none		none		none	part		part		none		none		none		
Florida	same	full	pol/stan	none		part		part	none	pol/stan	none		none		none		none		
Illinois	no	full	pol/stan	none		none		none	none		none		none		none		none		
North Carolina	same	part		none		none		none	part		none		none		none		none		
Ohio	no	part		none		none		none	none		none		none		none		none		
Pennsylvania	no	full	pol/stan	none		none		none	none		none		none		none		none		
Texas	same	full		none		full		part	part		part		part		part		none		
Virginia	same	part		part		part		part	part		part		none		none		none		

pol = policies  
stan = standards

1 Authority is cooperative except in review/approval of IRM acquisitions.

2 Review/approval of acquisition limited to state network impact.

3 Involved with policy and standards discussion for all of the above without direct authority.

4 Use of DIT is optional.

Group 1 = Population of 2 million or less

Group 2 = Population of 2 to 4 million

Group 3 = Population of 4 to 6 million

Group 4 = Population greater than 6 million

**Table 11. CIO's Functional Authority**

Chief Information Officer (CIO)												
States With CIO	Authority Same as IBM Commission	Data Processing	Telecommunications	Office Automation	Systems Development	Data Administration	IBM Acquisition	IBM Facilities	IBM Personnel	Public Access	Other	Comment
Group 1	Delaware	no	full	full	full	full	full	full	full	none	none	1
	Idaho	no	full	part	full	full	full	full	partial	partial	none	
	Maine	no	full	full	full	full	full	full	full	full	none	
	Montana	no	full	full	full	full	partial	full	partial	partial	none	
	Nevada	no	full	partial	partial	partial	partial	partial	partial	partial	none	
	New Mexico	no	full	full	partial	none	full	full	none	partial	full	
	North Dakota	no	full	full	full	full	full	full	full	full	none	
Group 2	South Dakota	no	full	full	full	full	full	partial	none	partial	none	
	Arizona	no	full	full	partial	partial	full	none	none	none	none	
	Arkansas	no	full	full	full	none	full	none	none	none	none	
	Colorado	same	full	partial	full	full	none	none	none	partial	none	
	Kansas	no	full	full	full	partial	full	full	full	none	none	
	Kentucky	no	full	partial	full	full	full	partial	partial	full	none	
	Mississippi	same	full	full	full	full	full	full	partial	full	none	
Group 3	Oregon	no	full	full	full	full	full	full	full	full	none	2
	South Carolina	no	full	full	full	full	partial	full	partial	full	none	
	Alabama	no	full	full	full	full	full	full	full	full	full	
	Maryland	no	partial	full	partial	partial	full	partial	partial	partial	none	
	Minnesota	no	full	full	full	full	full	full	none	full	none	
	Tennessee	no	full	full	full	full	full	full	full	full	none	3
Group 4	Washington	no	partial	partial	partial	partial	partial	partial	partial	partial	none	
	Wisconsin	same	full	full	full	full	full	none	none	none	none	
	California	no	full	partial	full	full	partial	full	partial	full	none	
	Florida	same	full	partial	full	full	partial	full	full	full	none	
	Illinois	no	full	full	full	partial	full	partial	partial	partial	none	
	North Carolina	same	full	full	full	full	full	partial	partial	partial	none	
	Ohio	no	full	full	full	full	full	full	partial	partial	none	
	Pennsylvania	no	full	full	full	none	full	none	none	full	none	
	Texas	same	full	full	full	full	full	full	full	full	none	
	Virginia	no	partial	partial	partial	partial	partial	partial	partial	partial	partial	(DIT)* (CIM)
		same	partial	partial	partial	partial	partial	none	none	none	none	

1 CIO sets standards for above areas.

2 Standards, policies and procedures

3 Manages service delivery functions in addition to policy responsibilities.

4 Although Department of Information Technology (DIT) provides these functions and Council of Information Management (CIM) approves policies, standards and guidelines addressing these functions, neither has management authority over these agency functions.

Group 1 = Population of 2 million or less; Group 2 = Population of 2 to 4 million; Group 3 = Population of 4 to 6 million; Group 4 = Population greater than 6 million

**Table 12. Authority and Scope of CIO Decisions**

Chief Information Officer (CIO)												
States With CIO	Are the CIO's Decisions Binding?	Approves State IRM Plans	Approves State IRM Policies	Approves State IRM Standards	Approves IRM Schedules for Shared IRM Services	Approves IRM Schedules for Department IRM Services	Approves Budgets for State IRM Organization	Approves Department IRM Budgets	Approves Classification Schedules for State IRM Operations	Approves Classifications for Department IRM	Approves State-level IRM Acquisitions	Approves Departmental IRM Acquisitions
Group 1	Delaware	Yes	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes
	Idaho	+ <sup>1</sup>	Yes	Yes	Yes	Yes <sup>2</sup>	No	Yes <sup>3</sup>	No	No	Yes	Yes
	Maine	Yes	No	No	No	No	No	Yes	No	No	Yes	Yes
	Montana	+	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes
	Nevada	+	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	No
	New Mexico	Yes <sup>4</sup>	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes
	North Dakota	+	No	No	Yes	Yes	No	No	No	No	Yes	Yes
Group 2	South Dakota	Yes <sup>5</sup>	No	Yes	Yes	Yes	No	No	No	No	Yes	Yes
	Arizona	+	Yes	Yes	No	Yes	No	No	Yes	No	Yes	Yes
	Arkansas	Yes	No	Yes	Yes	Yes <sup>6</sup>	No	Yes	No	No	Yes	Yes
	Colorado	No	No	No	No	No	No	No	Yes	No	No	No
	Kansas	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
	Kentucky	Yes <sup>7</sup>	No	Yes	Yes	Yes	N/A	No	Yes	Yes	Yes	Yes
	Mississippi	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Group 3	Oregon	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes
	South Carolina	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes <sup>8</sup>	No	Yes	Yes
	Alabama	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
	Maryland	Yes	Yes	Yes	No	No	No	No <sup>9</sup>	No <sup>9</sup>	No	No	No
	Minnesota	Yes	No	Yes	No	No	No	No <sup>10</sup>	No	No	Yes	Yes
	Tennessee	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
	Washington	Yes <sup>11</sup>	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes
Group 4	Wisconsin	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
	California	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
	Florida	No	No	No	Yes	No	No	No	No	No	No	No
	Illinois	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes
	North Carolina	+ <sup>12</sup>	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes
	Ohio	Yes	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes
	Pennsylvania	Yes	Yes	Yes	No	Yes	Yes	No	No	No	Yes	Yes
	Texas	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes
	Virginia <sup>14</sup> (DIT)	+	No	No	Yes <sup>15</sup>	Yes	No	Yes	No	No	Yes	No
	(CIM)	+	Yes	Yes	Yes	No	No	No	No	No	No	No

**Table 12. CIO Decisions**

**Footnotes:**

+ In some but not in others

- 1 Agency director can override unless purchasing laws could be violated.
- 2 Some
- 3 In conjunction with budget office.
- 4 There are six departments in the executive branch which are statutorily exempt from this question.
- 5 Codified law requires Bureau of Administration approval for data processing, telecommunications and office systems hardware, software and services.
- 6 Within executive branch
- 7 For centralized service only.
- 8 Partial
- 9 Advisory
- 10 Recommendations only to legislature and governor.
- 11 The enforcement mechanism is delegated acquisition authority; failure to comply with policy may result in loss of authority to purchase goods and services.
- 12 Departmental actions must comply with state IRM standards, policies and the strategic direction of the Information Technology Commission. Within those constraints departmental IRM management may exercise considerable latitude in decision making.
- 13 Indirectly by approving plans
- 14 DIT = director of Information Technology; CIM = director of the Council of Information Management.
- 15 May approve standards that affect those departments that use DIT.

Group 1 = Population of 2 million or less

Group 2 = Population of 2 to 4 million

Group 3 = Population of 4 to 6 million

Group 4 = Population greater than 6 million

Table 13. Central IRM Organizations

	Central IRM Organization							State-level Planning Organization							State-level Policy and Standards Organization						
	Director is CIO	Director Reports To	Is a Section of IRM Commission	Is a Section of Parent Organization	Total Budget (\$ Million)	Has State Level Plan Organization	Director Report To	Section of Central Organization	Total budget (\$ Million)	% Funded Appropriations	% Funded Receipts	% Funded Other	Has State Policy/Standard Organization	Director Reports To	Section of Central Organization	Total Budget (\$ Million)	% Funded Appropriations	% Funded Receipts	% Funded Other		
Group 1	Delaware	yes	+	no	yes	14.0	yes	CIO	yes	0.7	100.0	0.0	0.0	yes++	other	yes	14.0	87.2	12.8	0.0	
	Idaho	yes	+	no	yes	0.2	yes++	other	yes	0.0	0.0	0.0	0.0	no	-	yes	-	-	-	-	
	Maine	yes	+	no	yes	32.0	yes	CIO	yes	0.3	60.0	40.0	0.0	yes+++	other	no	N/A	N/A	N/A	N/A	
	Montana	N/A	-	-	-	-	yes	other	no	0.2	0.0	100.0	0.0	yes+++	other	no	0.2	0.0	100.0	0.0	
	Nevada	yes	+	no	no	8.9	yes	CIO	yes	4.0	0.0	100.0	0.0	yes	CIO	yes	0.4	0.0	100.0	0.0	
	New Hampshire	N/A	-	-	-	-	yes	other	N/A	N/A	N/A	N/A	N/A	yes+++	other	N/A	N/A	N/A	N/A	N/A	
	New Mexico	yes	+	no	yes	25.3	yes	other	no	0.3	100.0	0.0	0.0	yes+++	other	no	0.2	100.0	0.0	0.0	
	North Dakota	yes	+	no	yes	18.0	yes++	other	yes	18.0	0.0	100.0	0.0	yes++	other	yes	18.0	0.0	100.0	0.0	
	Rhode Island	no	other	no	yes	7.5	yes	other	yes	7.5	0.0	100.0	0.0	no	-	-	-	-	-	-	
South Dakota	yes	+	no	yes	13.7	no	other	no	0.0	0.0	0.0	0.0	no	-	-	-	-	-	-		
Group 2	Arizona	no	-	-	-	yes	other	N/A	0.0	100.0	0.0	0.0	yes+++	other	N/A	0.0	100.0	0.0	0.0		
	Arkansas	yes	+	no	no	24.0	yes++	other	yes	0.0	0.0	0.0	0.0	yes	yes	0.0	0.0	0.0	0.0		
	Connecticut	no	other	no	yes	20.0	yes	other	yes	1.8	100.0	0.0	0.0	yes+++	other	yes	1.8	0.0	0.0	0.0	
	Kansas	yes	+	no	yes	N/A	yes++	other	yes	0.0	0.0	0.0	0.0	yes++	other	yes	0.0	0.0	0.0	0.0	
	Kentucky	yes <sup>1</sup>	+	yes	no	0.0	yes++	other	yes	0.0	0.0	0.0	0.0	yes++	other	yes	0.0	0.0	0.0	0.0	
	Mississippi	yes	comm	yes	no	12.6	yes	CIO	yes	1.8	0.0	100.0	0.0	yes++	comm.	yes	12.6	0.0	100.0	0.0	
	Oregon	yes	+	no	yes	4.0	yes	CIO	yes	1.0	0.0	100.0	0.0	yes	CIO	yes	N/A	0.0	100.0	0.0	
	Alabama	yes	other	no	yes	43.0	yes++	other	yes	43.0	7.0	93.0	0.0	yes++	other	yes	43.0	7.0	93.0	0.0	
Group 3	Maryland	N/A	-	-	-	pending	other	N/A	0.5	100.0	0.0	0.0	yes+++	other	N/A	0.5	0.0	100.0	0.0	0.0	
	Minnesota	yes	+	no	yes	1.6	yes++	other	yes	1.6	100.0	0.0	0.0	yes++	CIO	yes	1.6	100.0	0.0	0.0	
	Tennessee	yes	+	no	yes	54.0	no	-	-	-	-	-	-	no	-	-	-	-	-	-	
	Washington	yes	+	no	no	97.1	yes	CIO	yes	1.3	100.0	0.0	0.0	yes	other	no	N/A	0.0	0.0	0.0	
	Wisconsin	no	CIO	no	yes	0.0	yes++	CIO	yes	0.0	0.0	100.0	0.0	yes++	CIO	yes	0.0	0.0	100.0	0.0	
	Group 4	California	N/A	-	-	-	yes	other	N/A	2.7	90.0	10.0	0.0	yes+++	N/A	N/A	2.7	90.0	10.0	0.0	0.0
Florida		yes	comm	no	yes	1.0	yes++	comm.	yes	1.0	100.0	0.0	0.0	yes++	comm.	yes	1.0	100.0	0.0	0.0	
Georgia		no	other	no	no	0.0	no	-	-	-	-	-	-	yes++	other	yes	N/A	0.0	0.0	0.0	
Illinois		no	CIO	no	yes	1.0	yes	CIO	yes	0.1	0.0	100.0	0.0	yes+++	CIO	yes	0.1	0.0	100.0	0.0	
Michigan		no	other	no	yes	13.0	yes	other	yes	13.0	5.0	95.0	0.0	yes++	other	yes	13.0	5.0	95.0	0.0	
Missouri		no	other	no	yes	12.4	yes	other	yes	0.3	100.0	0.0	0.0	yes+++	other	yes	0.3	100.0	0.0	0.0	
New York		N/A	-	-	-	-	yes <sup>2</sup>	other	N/A	N/A	100.0	0.0	0.0	no	-	-	-	-	-	-	
North Carolina		yes	+	no	yes	N/A	yes	other	yes	0.1	100.0	0.0	0.0	yes+++	other	yes	0.1	100.0	0.0	0.0	
Ohio		yes	+	no	no	105.6	yes	CIO	yes	0.5	0.0	100.0	0.0	yes+++	CIO	yes	0.5	0.0	100.0	0.0	
Pennsylvania		no	CIO	no	yes	1.1	yes++	CIO	yes	1.1	0.0	100.0	0.0	yes++	CIO	yes	1.1	0.0	100.0	0.0	
Texas		N/A	-	-	-	-	yes	CIO	N/A	N/A	100.0	0.0	0.0	yes+++	CIO	N/A	N/A	100.0	0.0	0.0	
Virginia		yes	+	no	no	79.0	yes <sup>4</sup>	comm.	no	0.6	0.0	0.0	100.0	yes+++	comm.	no	0.6	0.0	0.0	100.0	

+ For information on the CIO's organizational relationships, see Table 9.

++ Same information as is provided under the "Central IRM Organization" columns.

+++ Same information as is provided under the "State-level Planning Organization" columns.

1 Coincidental - not mandated. The chairperson of the KISC is elected; the CIO is the current chairperson.

2 Administers an agency-level IRM planning process implemented statewide for 1992-93.

3 The DIT is referenced here. However, the CIM also has oversight responsibilities.

4 CIM is referenced here. The director reports to the commission and the Secretary of Administration.

Group 1 = Population of 2 million or less

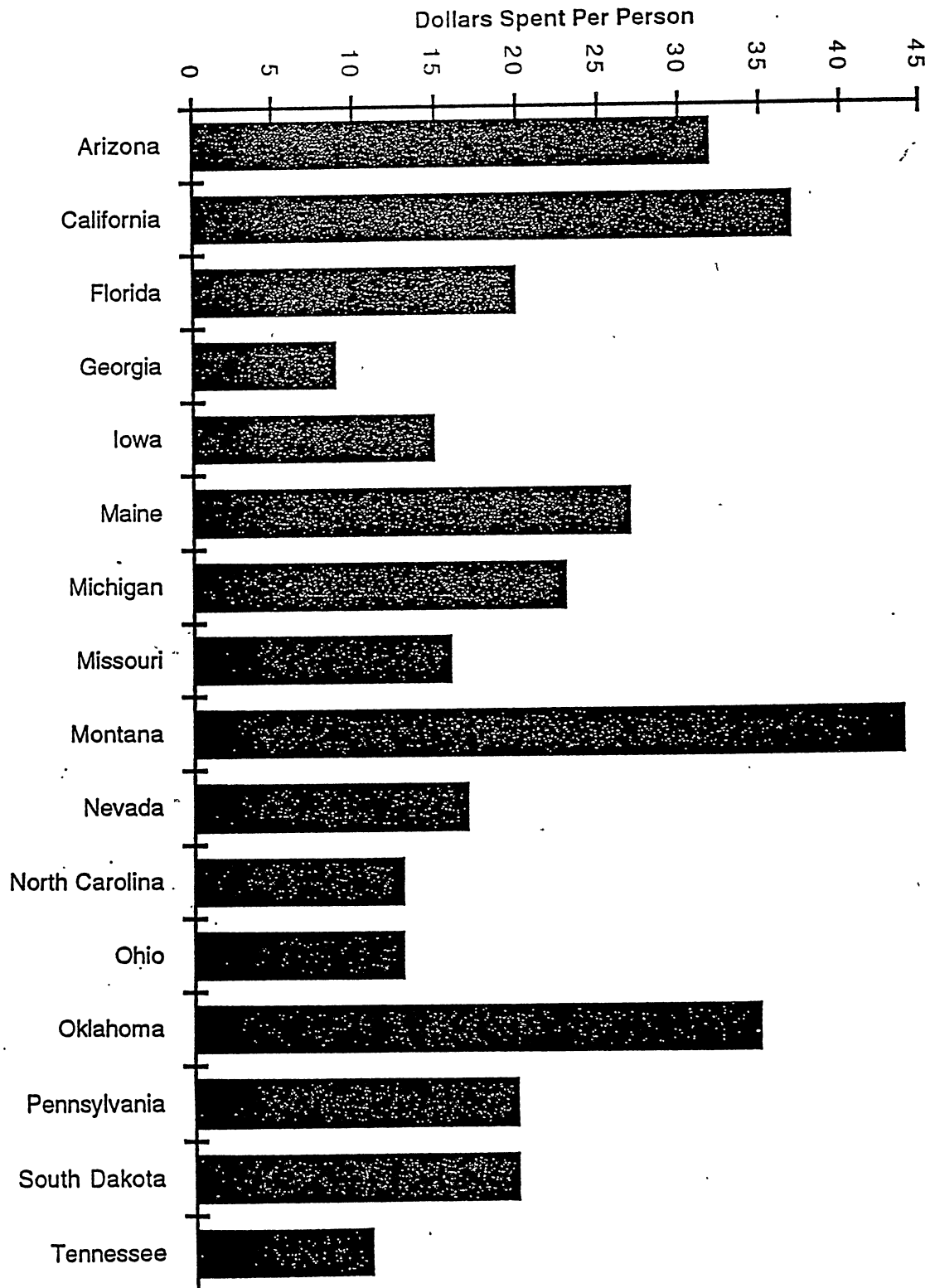
Group 2 = Population of 2 to 4 million

Group 3 = Population of 4 to 6 million

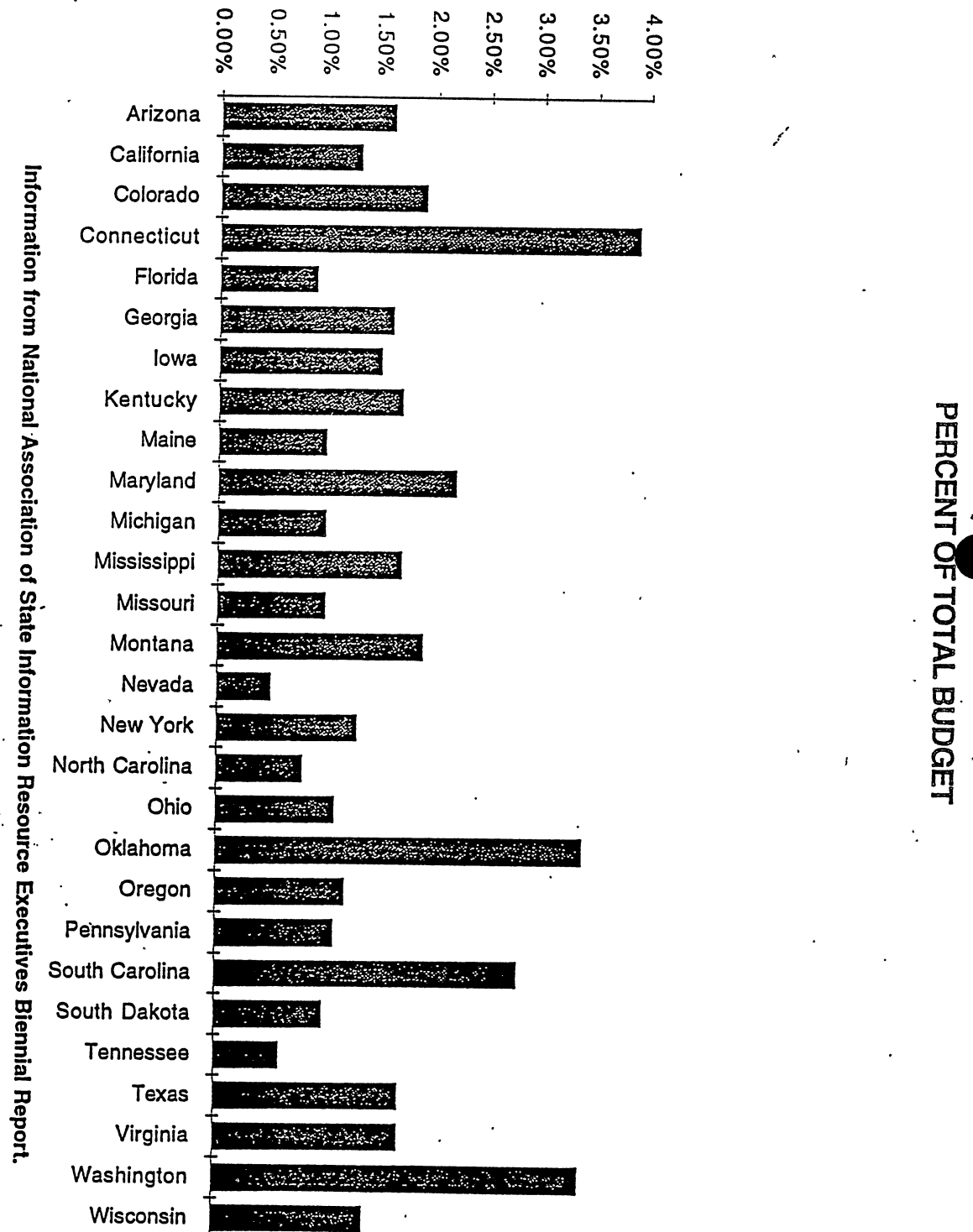
Group 4 = Population greater than 6 million



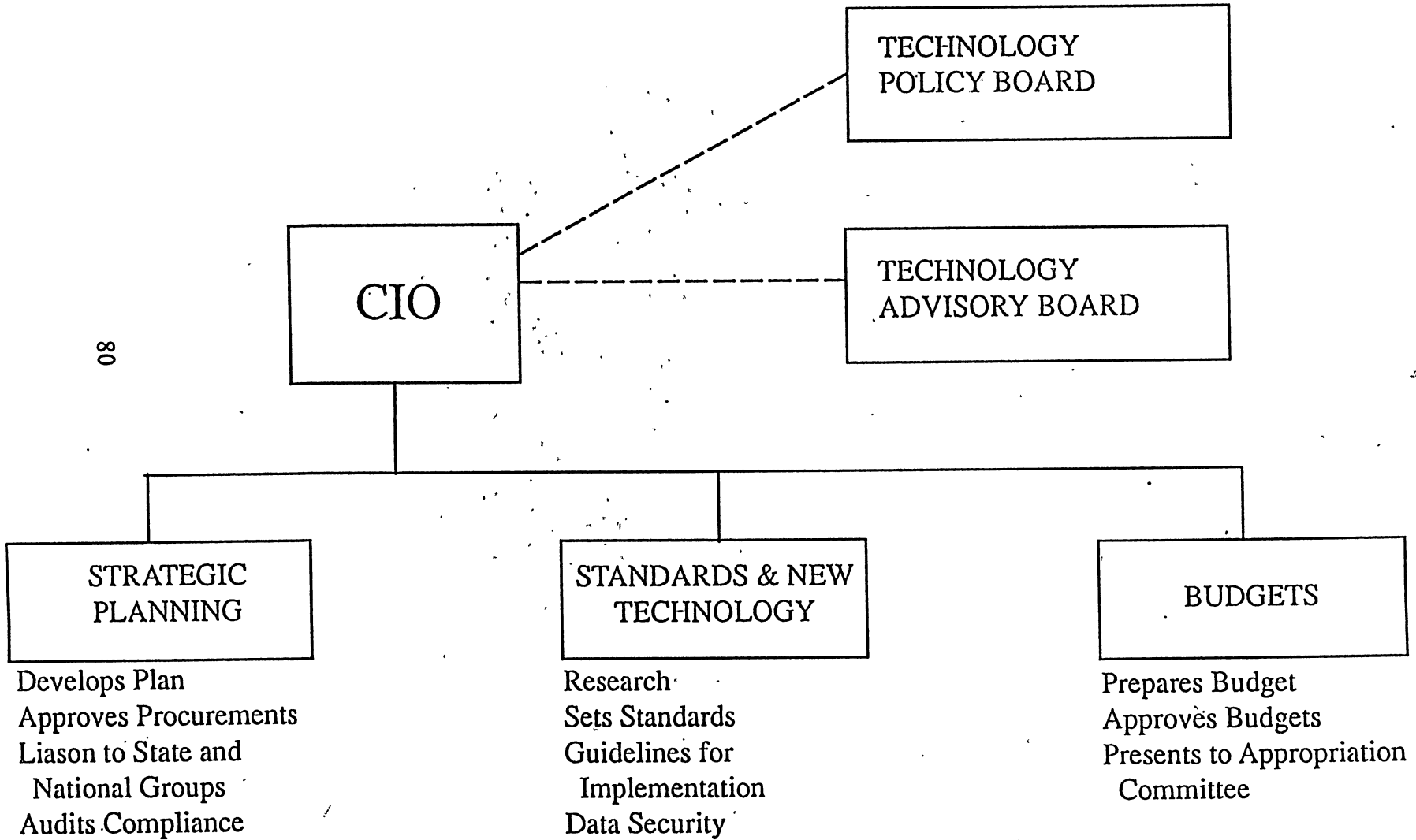
M. IT Expenditures per Citizen by State\*



**N. IT Expenditures as a Percent of State Budgets**



O. Organizational Chart/Functions of Chief Information Officer



**P. Notes from Annual Data Processing and Telecommunications Report and Plan, Fiscal Year 1993, Missouri Office of Administration.**

The following are summary notes from this source.

1. The offices of elected officials have a wide variety of basic IT hardware and software. However, due to the composite of such often being incompatible, there is little ability to communicate within and across the offices of such officials. Some equipment is quite dated in architecture and functionality.
2. There are in excess of 22,000 PCs in the executive branch of state government (p. 76).
3. The Governor's Steering Committee on Information and Data Sharing (comprised of policy level officials from each department) is to operate in a policy advisement role. It has formed four subcommittees: networking, global card uses, kiosk system uses, and management of state information through technology.
4. There is a wide variety of PC-based office automation software used throughout state government. There is no standard packages recommended by the Office of Administration. (Includes word processing, database, spreadsheet, e-mail, and so forth.)
5. Almost all executive branch agencies referred to LANs in either having them operational or planning such. There are several references to isolated wide area networks (WANs).
6. Only several agencies referred to having disaster recovery plans.
7. Numerous agencies referred to having begun using the Texas Instruments tool, Information Engineering Facility (IEF), for strategic planning and as a case tool at various levels of their departments. It appears that IEF has been accepted by some as a standard.
8. Rarely in the report is there any reference to the need for training of staff on how to use IT tools, and there is no reference to administrators needing training how to incorporate the use of IT in business process engineering.
9. Elected officials referred in text to having assigned IT duties to specific staff; however, personnel expenditures for IT managers could not be identified. These data are of little use for planning and budgeting and further reflect on the need for accuracy in reporting data about IT throughout state government.

**Q. Proposed Revision to Chapter 34, Section ???, RSMo.**

"34.xxx The Commissioner of Administration shall approve all data processing and telecommunications procurement requests based on the computing facilities plan and information system plan referenced in Chapter 37.005(9)."

This addition to Chapter 34 will make the head of each agency personally liable if they do not receive proper approval from DP&T (see Chapter 34.150).

## Tables

**Table 1: Missouri Agency IT Resources-Hardware**

State Government Entity	#/Type Mainframe	#/Type Midrange	Number of LANs	Number of PCs in Agency (b)
Office of Administration	1	2	7	534
Agriculture	0	1	5	175
Conservation	0	5	30	531
Corrections	0	5	2	611
Economic Development	0	2	5	677
Elementary & Secondary Education	1	8	7	601
Health	0	7	4	2,324
Higher Education	0	1	0	31
Highway & Transportation	2	11	21(c)	2,151
Insurance	0	5	5	255
Mental Health	0	20	25	1,224
Labor & Industrial Relations	1	5	5	255
Public Safety	1	11	16	400
Natural Resources	0	4	17	900
Social Services	1	17	18	998
Revenue (includes Lottery)	0	1	9	1,484
Judiciary	0	2 (a)	67	300(d)
Governor	0	1	0	22
Lieutenant Governor	0	0	0	10
Secretary of State	0	1 (a)	2	124
State Auditor	0	0	2	149
Attorney General	0	3	8	80
State Treasurer	0	1 (a)	1	39
Missouri Senate	0	1	1	40
Missouri House of Representatives	0	2	0	unk

Source: OA, DP&T, July, 1994

Notes: RS6000-type computers are categorized as midrange equipment.

- (a) Unisys computer. To be phased out in near future.
- (b) FY93 MO Annual Plan. It was desirable to learn the number of PCs recently purchased, but the automated procurement system of the Division of Purchasing does not track the contracted purchase of PCs.
- (c) Another 43 networks are planned during FY95.
- (d) Doesn't include county owned.

**Table 2: Missouri Agency IT Plans, Budgets, Organization and FTE**

State Government Entity	Agency IT Strategic Plan (year)	IT Manager Reports To	FY95 IT Budget (\$mil) <sup>(a)</sup>		Total of FTE <sup>(b)</sup>	FTE for PC/LAN Only	% Real Budg et "off IT"
			Pers	E&E			
Office of Administration	no	Dpt Dir	2.5	1.9	169	5	See Note
Agriculture	no	Div Dir	0.2	0.03	7	0	
Conservation	no	Div Dir	1.1	1.8	23	9	
Corrections	no	Dpty Dpt Dir	0.8	1.5	31	1	
Economic Development	no	Div Dir	0.8	1.9	25	0	
Elementary & Secondary Education	no	Int. Op. Section	0.5	0.3	20	1	
Health	yes	Div Dir	0.8	0.5	27	2	
Higher Education	no	Div Dir	0.1	0.1	3	1	
Highway & Transportation	yes	Asst. to Dpt Dir	3.0	3.4	101	12	
Insurance	yes	Div Dir	0.2	0.8	8	3	
Mental Health	yes, 1992	Dpt Dir	2.0	2.4	65	3	
Labor & Industrial	no	(a)	3.6	4.7	72	4	
Public Safety	yes, MSHP	Asst. Dpt Dir	2.2	5.1	87	12	
Natural Resources	no	Div Dir	.4	2.2	22	3	
Social Services	no	Assoc. Dpt Dir	6.0	27.5	198	7	
Revenue (incl Lottery)	no	Dpty Dpt Dir	6.2	8.2	251	8.5	
Judiciary	no(b)	St Crt Admin	0.8	0.2	31.5	10	
Governor	no	Dir Admin Serv	0.02	0.04	1	0	
Lieut Governor	no	na	0	0	0	0	
Secretary of State	no	Exec Dpty	0.1	0.1	3	0	
State Auditor	no	Dir Admin	0	0.07	0	0	
Attorney General	no	Dir Admin	0.1	0.5	4	1	
State Treasurer	no	Asst Treas	0.03	0.1	1	1	
MO Senate	no	unk	0	0	14	0	
MO House of Rep.	no	Chief Clerk	0	0	8	0	



Source: OA, DP&T, July, 1994. Numerous agencies did not respond to the Task Force request for information. Copies of responses are available from DP&T.

Notes: According to agency responses to questionnaire during June, 1994, this amount ranges from 0 to over 70 percent.

- (a) DLIR is undergoing reorganization and final data regarding total operations were not available at the time of this report. Data reported are for the Division of Employment Security; others were provided by the Division of Workers' Compensation.
- (b) During 1994, the Missouri Legislature authorized \$7/court case for statewide automation of the Judiciary.

**Table 3: Summary Responses of Agencies to Task Force Questionnaire**

State Government Entity	Major IT Changes		How Does Agency Research New Technology	What New Technologies Are Being Investigated
	Last 3-5 Years	Next 3-5 Years		
Office of Admin.	Incorporated new agencies into State Data Center.	Document imaging, budgeting system, statewide e-mail.	No organized plan; done when need arises.	None.
Agriculture	More AS/400, contracting.	More AS/400, extend LAN.	No organized plan.	PCs used for sample analyses.
Conservation	AS/400s, LANs, GIS, reorganization of IT.	State-wide e-mail, research center automation, upgrade PCs, point of sale distribution, WAN, etc.	Vendors, publications, and seminars.	Point of sale terminals, bar coding, multi-media, hand-held computers, and magnetic strip cards.
Corr/H.R.	None.	Imaging, LANs.	Vendors, publications, etc.	Imaging and client-server technology.
Ec. Dev.	Away from mainframe to PC.	Greater interconnectivity.	Seminars, reading, MIS laboratory.	Wireless, object oriented tech, voice recognition, multimedia, GIS, etc.
Elem/Sec Ed.	High staff turnover, new mainframe software systems, mainframe upgrade, MOREnet, LAN growth.	Interoperability, GUI, LAN growth, revise legacy systems, relational database use.	Tech contractor, users, data managers, etc.	LAN speed, bandwidth, GIS.
Health	ISP with IEP	Integrated public health system.	Assign staff as needed.	CASE, networking, GIS.
Higher Ed.	MOREnet, AS/400, PC growth.	Internet gopher, public data access.	Literature, conferences, MOREnet staff.	EDI, gopher, MOSAIC, e-mail.
Hwy/Trans.	CADD, IEF developments	Client-server expansion, modernization of legacy systems, business process reengineering	Have IT development workgroup perform this function.	Imaging, electronic forms, document management, distributed databases, WAN, etc.
Insurance	PC growth and LANs.	Greater inconnectivity.	Reading, participation with professional groups.	Relational database, imaging, multimedia, EDI.
Mental Health	Consolidate data center, CASE, new network, reduce FTE 30%	Client/server, CASE.	As needs exist.	Client/server, e-mail, UNIX, CASE, GUI.

Labor/I.R.	Document imaging, growth in PCs, and interactive voice response.	Planned department consolidation of IT.	Done by users and programmers.	Reduce use of mail, electronic reporting by employers, KIOSK, etc.
Public Safety	Rightsizing, increase in PC/LAN.	Imaging, GUI, internetworking.	Prototyping, testing.	Image, CASE, networking, group ware.
Natural Res.	None	CASE strategic Planning	No DP staff available	None
Social Serv.	CASE, TI's IEF.	Development with TI's IEF.	volunteers	EDI, multimedia.
Revenue (incl Lottery)	Growth in PCs and LANs, bar coding, move away from mainframe, etc.	New hardware and software, open systems environment, etc.	Has technical review board for such, teaming, vendors, etc.	LAN backbone, WAN, electronic transmission of taxes, imaging, etc.
Judiciary	Under development.	Imaging, electronic fund transfer, EDI, etc.	None	None
Governor	None	None	Doesn't	None
Lieut Governor	Added PCs.	Created constituent's database.	Doesn't	None
Secretary of State	Grow LANs, CD-ROM, interconnectivity.	unknown	Publications, vendors, etc.	Imaging, centralized voter registration, etc.
State Auditor	Installed LAN.	None	Research	OCR
Att General	Midrange to PC base.	More PC growth.	Reading and investigate when need arises.	None.
State Treasurer	None	Redevelop applications, new hardware.	None	Client/server, imaging.
MO Senate	None	None	Doesn't	None
MO House of Rep.	no response			

The data in this table were compiled from the results of a questionnaire responded to by agencies during June, 1994. The full text of agency responses is available from DP&T. "No response" indicates that agencies did not respond to related questions.

## References

## References:

(Among the resources used to prepare this report was information provided by numerous state elected officials, department directors and their assistants, IT administrators throughout state government, and various other private and public sector individuals. These and other pertinent reference documents have been archived in the COMAP Office.)

Florida, State of. (date unknown). "State Strategic Plan for Information Resources Management, Executive Summary", Tallahassee, FL. (Source: Mike Hale, Executive Administrator, Information Resource Commission, Tallahassee, FL). (This is an excellent document.)

Fullmer, Sara and McCann, Jody, Bureau of Information and Telecommunications Management, Wisconsin Department of Administration, Madison, WI. IT documents from the Wisconsin Department of Administration, 1994.

G2 Research, Inc. (1994). Network and Telecommunications Opportunities in State and Local Government - Management Survey. (This contains a body of information which describes past trends in governments and formulates intermediate-term projections in the industry.)

Hammer, Michael and Champy, James. (1993). Reengineering the Corporation, HarperCollins: New York. (This is an outstanding reference for becoming acquainted with the concept and private sector examples of business process reengineering. It recognizes the strategic importance of IT to achieving more than incremental improvements in price and service performance; in fact, it emphasizes that it is possible to achieve orders of magnitude improvement in processes when properly reengineered.)

Kansas Information Resource Council. (October, 1993). Reinventing Kansas Government, Topeka, KA.

Missouri Office of Administration. (January, 1994). Annual Data Processing and Telecommunications Report and Plan, Jefferson City, MO.

Missouri Department of Mental Health. (May 27, 1992). Information Systems Strategic Plan, Jefferson City, MO.

National Association of State Information Resource Executives. NASIRE Biennial Report. (1992). (This is a very detailed document regarding government activity throughout the United States in the area of IT. It particularly focuses on the CIO organizational position and functions and includes a state-by-state comparison.)

Ohio Department of Administrative Services. (December, 1993). "Statement of Direction

for IS in Ohio Government", Columbus, OH.

Virginia Council on Information Management. (1993). Virginia Plan for Information Management, Richmond, VA.

Texas Department of Information Resources. (November, 1993). State Strategic Plan for Information Resources Management, Austin, TX. (Internet gopher: info.texas.gov port 70). (This is a well developed plan with various issues relevant to Missouri's current status.)

Wisconsin, State of. (October, 1992). Statewide Information Technology Plan, Madison, Wisconsin. (This document appears as a textbook example of strategic planning, including the "case for action" and "vision" components critical to effective planning.)